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Southwestern MEDICINE

Official Journal of The Southwestern Medical Association,
The Western Association of Railway Surgeons, Southwestern Dermatological Society,
Texas District One Medical Association, The Southwestern New Mexico Medical Society,
and El Paso County Medical Society

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VOL. 44, NO. 1

January, 1963



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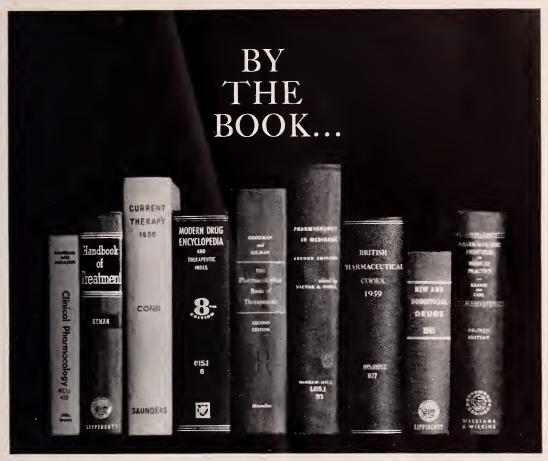
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VOL. 44

JANUARY, 1963

NO. 1

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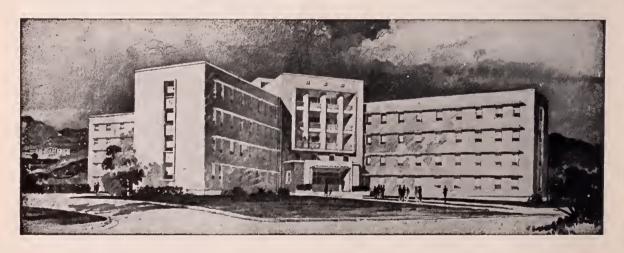
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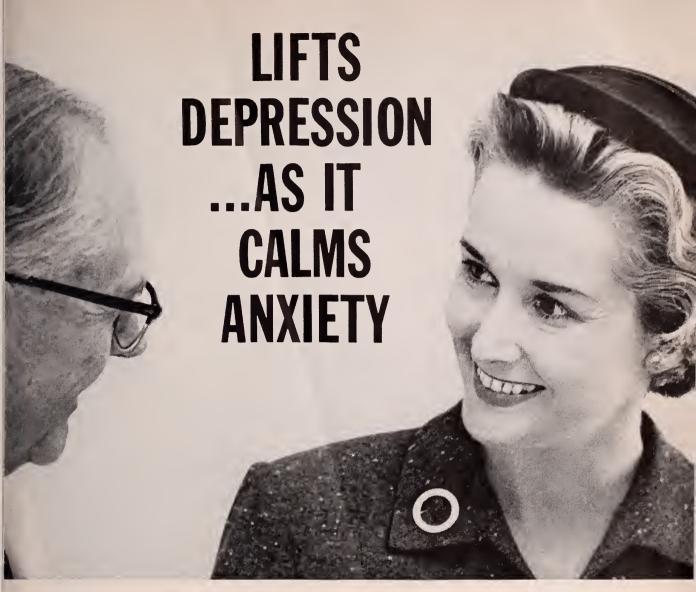
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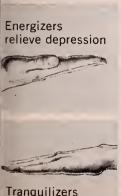
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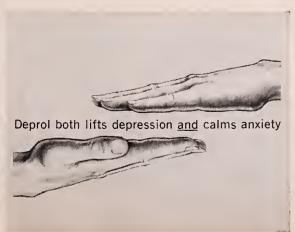


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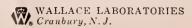
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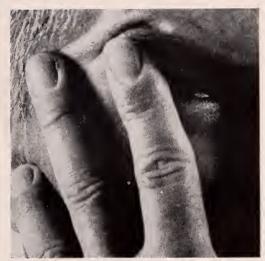
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MEETINGS

Dr. Thomas

Elected President

of

Southwestern Medical Association



Dr. Thomas

Dr. M. D. Thomas of El Paso was elected president of the Southwestern Medical Association at its 44th annual meeting in Albuquerque, October 18 through 20, 1962.

Other new officers are Dr. F. A. Shallenberger, Tucson, president-elect; Dr. R. F. Boverie, El Paso, vice-president; and Dr. Grady Morrow, El Paso, secretary-treasurer. Members of the executive committee are Dr. Frank Rowe, Albuquerque, Dr. Harry Sellers, Lordsburg, N. M., Dr. Homero Galindo, Juarez, Mexico, Dr. Carlos Sotelo, Hermosillo, Mexico, Dr. Louis Jekel, Phoenix, Dr. Harold J. Beck, Albuquerque, and Dr. Louis W. Breck, El Paso. The 1963 meeting will be held in El Paso.

Dr. Thomas recently returned from a twomonth tour in June and July aboard the ship "Hope" at Trujillo, Peru, where he taught anesthesiology to medical students as a volunteer service for the non-profit foundation Project Hope.

Dr. Thomas has been a delegate from El Paso County Medical Society to the Texas Medical Association since 1953. He is a past secretary-treasurer of the El Paso County Medical Society, past secretary-treasurer of the Southwestern Medical Association, and is certified by the American Board of Anesthesiology.

Dr. Thomas received his B.A. from the University of Missouri and his M.D. from Northwestern University School of Medicine. He interned at Cook County Hospital in Chicago and took a two-year residency in anesthesiology at the Evanston Hospital in Evanston, Illinois. He served in the medical corps for 27 months in World War II and 11 months in the Korean War.

He began the practice of anesthesiology in El Paso in 1950 and is located in the El Paso Medical Center.

He is a member of the executive board of Yucca Council of the Boy Scouts, and he and his wife and three children reside at 7908 Big Bend Drive in El Paso.

TMA President to Speak at District I Meeting

Dr. George W. Waldron, Houston, president of the Texas Medical Association, will be guest speaker at the annual meeting of District I of the Texas Medical Association at an all day meeting, Saturday, Feb. 2, 1963, in the Pecos Country Club.

Dr. Waldron will speak at a luncheon to which members and their wives are invited. He will be introduced by Dr. Charles E. Oswalt, Jr., Fort Stockton, councillor for District I.

Among guest speakers on the scientific agenda will be Dr. Alfred E. Leiser, Houston, and Dr. L. Leighton Hill, Houston. Both are specialists in the field of endocrine diseases and are on the staff of the Texas Medical Center. Their participation in the meeting is made possible by the Postgraduate School of the University of Texas.

Dr. Hill will speak on "Management of Juvenile Diabetes" and "Pediatric Aspects of Diarrhea and Dehydration." Subjects for Dr. Leiser are "Diagnosis and Management of Gout" and "Principles of Management of Adult Diabetes." Dr. H. D. Garrett, El Paso, will speak on "Sunlight and Dermatitis" and Dr. Russell Holt, also of El Paso, will deliver a paper on "Regional Ileitis." A discussion on problem chest films will close the session and will be led by Drs. Delphin von Briesen, Charles C. McVaugh and Gordon L. Black, all of El Paso.

Mrs. R. C. L. Robertson, Houston, president of the Texas Medical Association Auxiliary, will speak at a meeting of the District I Auxiliary in the home of Dr. and Mrs. Bruce Hay. Mrs. Harold Lindley is in charge of local arrangements for the ladies program and Mrs. Jesson Stowe, El Paso, is councilwoman for District I.

Officers of the District I organization are Dr. Gordon L. Black, El Paso, president; Dr. Charles Jones, Fort Stockton, vice-president; and Dr. William Gaddis, El Paso, secretary-treasurer.

AWARD WINNER—Dr. Louis W. Breck of El Paso (left), managing editor of Southwestern Medicine, presents a certificate and check to Dr. M. R. Chappel, director of Student Health Service at the University of Arizona, Tucson, at the 44th annual meeting of the Southwestern Medical Association Oct. 18-20 in Albuquerque. Dr. Chappel was one of the winners in the 1961-1962 Scientific Writing Awards contest of Southwestern Medicine.

SCHOLARSHIP FUND—Dr. R. C. Derbyshire of Santa Fe (left) president of the New Mexico Medical Society, presents a check and notes total ing \$5,919.40 to Dr. Reginald Fitz, dean of the Medical School at the University of New Mexico from the society's student loan fund to the new school's scholarship fund at the annual meeting of the Southwestern Medical Association Oct. 18-20 in Albuquerque.





SOUTHWESTERN MEDICINE



Dr. Gaddis

Dr. Gaddis Elected President Of El Paso County Medical Society

Dr. William R. Gaddis has been elected president of the El Paso County Medical Society for the 1962-63 year. He succeeds Dr. Jesson L. Stowe.

Other new officers are Dr. H. D. Garrett, president-elect; Dr. R. F. Boverie, vice-president; Dr. W. L. Lorentzen, secretary; Dr. James L. McNeil, secretary-elect; and Dr. M. R. Vinikoff, treasurer.

Born in Cleveland, Ohio, Dr. Gaddis is the son of Dr. Leo R. Gaddis of El Paso, who brought his family to the southwest in 1930. The family first resided in Hot Springs, N.M., then moved to Alamogordo, N.M., and the elder Dr. Gaddis established his medical practice in El Paso in 1940.

The society's new president is a graduate of San Marcos Academy, has a B. A. from Hardin-Simmons University and an M. D. from Baylor University College of Medicine. He interned at Baylor University Hospital and served in the Army Medical Corps from 1943 to 1946, emerging with the

rank of Captain, M.C. He joined his father here in the practice of medicine in 1946.

Dr. Gaddis is a past president of the El Paso chapter of the Texas Academy of General Practice, and a member of the Southern Medical Association, the Christian Medical Society and the American Society of Clinical Hypnosis. He is a former director of the El Paso County Mental Health Association. He has served as chief-of-staff at Hotel Dieu and Thomason General Hospital and is a member of all El Paso hospital staffs.

Dr. Gaddis is a former director of the Kiwanis Club and Boys Baseball. He is a deacon in the Grandview Baptist Church.

He and Mrs. Gaddis reside in El Paso at 3131 Memphis Avenue with a son, William, Jr., an Austin High School sophomore. They have a son, Leo, who is in graduate engineering at New Mexico State University, and a daughter, Wanda Lee. a sophomore at Hardin-Simmons University.

Dr. Disney Elected AAAM President

Dr. C. T. Disney, plant medical director for the Gary Sheet and Tin Division of U. S. Steel, has been elected president of the American Association for Automotive Medicine at its annual meeting, held in conjunction with the Sixth Stapp Crash Conference at Holloman Air Force Base near Alamogordo, N. M., Nov. 7-9.

Other new officers are Dr. A. J. Mirkin, Cumberland, Md., secretary, Dr. H. Gerard Siek, Jr., Clearwater, Fla., treasurer, and Dr. Louis W. Breck, El Paso, news editor. Dr. Frank E. Barnes, Jr., Smithfield, N. C., and Dr. Suzanne A. Snively, Sacramento, Calif., were retiring president and secretary, respectively. New members of the board of directors include Dr. J. M. Janes, Mayo Clinic, Rochester, Minn., Dr. William K. Keller, Univer-

sity of Louisville, Louisville, Ky., and Dr. Breck.

The AAAM was founded in 1957 and is composed primarily of physicians, with the addition of persons in related fields of endeavor, who are vitally interested in working toward the reduction of death and injury caused by automobile accidents. Many, but not all, of the members are also interested in driving competitively or in designing cars. The association has among its projects active participation in community programs for driver and safety education, promotion of use of seat belts, work with legislative bodies on matters concerned with driver licensing, driver education programs both at the high school and even medical school level, accident investigation, and other related programs.

Postgraduate Course To Be Held Jan. 20

Dr. Ralph Gause, professor of obstetrics and gynecology at the College of Physicians and Surgeons at Columbia University, will be the guest speaker at a one-day meeting on obstetrics and gynecology here January 20 in the El Paso County Medical Society's Turner Home at 1301 Montana Ave.

Dr. Gause will speak on obstetrical emergencies, geriatric gynecology, and menstrual disorders.

Other participants on the program will be Dr. Arlin B. Cooper, Dr. Jack L. Hargan, and Dr. John H. Johnstone of El Paso County Medical Society, and Dr. Donald Snider, M.C., William Beaumont Army Hospital.

Dr. J. Leighton Green is director of the El Paso division of the University of Texas Postgraduate School of Medicine, which is conducting the program.

Coming Meetings

District I, Texas Medical Association, Annual Meeting, Pecos Country Club, Pecos, Texas, Feb. 2, 1963.

Arizona Academy of General Practice, third annual Seminar, "Psychiatry in the Practice of Medicine," Arizona State Hospital, Phoenix, Feb. 9-10, 1963. Address inquiries to: James L. Grobe, M.D., 2610 West Bethany Home Road, Phoenix 17, Arizona.

Second Annual New Mexico Psychiatric Seminar, Albuquerque, March 22 & 23, 1963.

American College of Allergists, Graduate Instructional Course and 19th Annual Congress, Americana of New York, New York City, March 24-29, 1963.

New Mexico Medical Society, 81st Annual Meeting, Western Skies Hotel, Albuquerque, April 24-26, 1963.

New Mexico Chapter, AAGP, Ruidoso Summer Clinic, Ruidoso, N. M., July 15-18, 1963.

Long Term Thyroid-Vitamin Treatment of Atherosclerosis in Chronic Diseases

Murray Israel, M.D.

Director, Vascular Research Foundation
New York

As is well known, every person over 40 is a potential candidate for serious arterial disease, since the deposition of cholesterol in the intima is a characteristic accompaniment of the aging process.

Experimental evidence derived from laboratory animals led W. C. Hueper¹ to suggest, in 1944, that an approach to the prevention of cholesterol atheromatosis might lie in a combination of thyroid hormone and vitamins, continuously administered. When this suggestion appeared, our group had already been using such a therapeutic combination in many types of chronic illness over a period of six years (since 1938).

Hueper's Anoxemia Theory stated, in essence, that cholesterol atheromatosis results from a disturbance of the oxidative metabolism, which permits the deposition of cholesterol. So numerous are the etiologic factors which can cause interference with the integrity of the vascular walls that almost *everything* in the environment could, under appropriate conditions, be implicated.

For purposes of effective prevention and treatment of cholesterol atheromatosis, a therapeutic method was needed that could be applied to all patients without regard to triggering mechanisms or basic heredity. The therapeutic agents to be used would have to meet the following criteria:

(1) compatibility with human cellular metabolism; (2) ability so to improve the oxidative metabolism of the cell as to improve the cell's ability to utilize cholesterol; (3) sufficient harmlessness to permit life-long treatment, particularly in the face of increasing need with increasing age. In addition, research criteria demanded that both the therapy and its effects be measurable and reproducible.

Having previously found that patients suffering from such diverse chronic ailments as arthritis, asthma, diabetes mellitus, and coronary disease, benefited from a combination of thyroid extract, B vitamins, and ascorbic acid, administered as an adjunct to specific therapy, we decided to embark on an extensive clinical program which would permit the study of thyroid-vitamin therapy in atherosclerosis. Previous experience had shown that this therapy met the criteria set forth above.

Thus, the research program that evolved was based upon the following deductions: (1) that atherosclerosis results from the failure of the organism to prevent deposition of exogenous and/or endogenous cholesterol; (2) that this failure is the result of the derangement, cyclic or persistent, of the hormonal control of the oxidative cellular metabolism; (3) that the key to this derangement is thyroid hormonal disturbance, hereditary and/

or acquired. This theory has been amply justified in the past 14 years both by the results of this clinical research program and by extensive studies by other investigators.

Treatment

Goals and Indications

The treatment to be described was originally designed as a specific approach to the problem of arteriosclerosis. However, since the objective was to correct the metabolic imbalance which precedes the atherogenic process, the therapy could be properly tested and evaluated only if patients who had not yet developed clinical evidence of disease were treated in addition to those with established cases of cholesterol atheromatosis. A further inference of a treatment using the thyroid hormone as a key was that it necessarily would affect and apply to every system and organ of the body, for any modification of an individual's lipoidal metabolism inevitably alters his total metabolism.

Therefore, the indications for the therapy include general hypometabolic states and specific metabolic diseases as well as most types of vascular disorders. (Contraindications, of course, include Graves' disease, toxic adenoma of the thyroid, neoplastic diseases, and late stages of senility.) As most people, including the majority of apparently euthyroid individuals, will eventually develop atherosclerotic lesions, quantitative laboratory evidence of thyroid deficiency is not a prerequisite of the treatment.

The therapy is indicated for treatment of the metabolic component in focal atheromatosis, especially cerebral, coronary, and peripheral vascular disease; for treatment of the lipoidal stage of cirrhosis of the liver; hypothyroidism, myxedema, and pituitary hyperfunction where there is evidence of excessive ACTH secretion; and for treatment of anxiety states associated with metabolic insufficiency. Therefore, as atherosclerosis is usually associated with many of the specific organic diseases, this therapy became the primary treatment for all our patients, whether suffering from functional disease or from one or more chronic diseases.

Patients

The 352 patients whose continuous treatment was long enough (from three to 20 years) to provide evidence for this report had a variety of chronic diseases. Organic heart disease was pre-

sent in about 30 per cent; hypertension, 25 per cent; rheumatoid arthritis, 20 per cent; diabetes, seven per cent; asthma, seven per cent; cholelithiasis, 10 per cent; and hyperventilation, 20 per cent. In addition, the following associated conditions were found: post-cerebral thrombosis, post-operative thyroidectomy, paroxysmal tachycardia, duodenal ulcer, multiple allergy, Meniere's syndrome, thrombophlebitis, obesity, cirrhosis of liver, gout, chronic alcoholism, essential xanthomatosis, hiatus hernia, peripheral vascular disease, post-operative cancer of ascending colon; post-operative cancer of the thyroid gland, pituitary tumor, epilepsy, Paget's disease, and residual Bell's palsy. Some patients had as many as eight different conditions.

About 30 per cent of the group, mostly younger patients, had symptoms of metabolic insufficiency without evidence of specific organic disease. These patients presented general symptoms such as tiredness, nervousness, depression, irritability, weakness, forgetfulness, inability to concentrate, exhaustion, coolness, drowsiness, and insomnia; and local symptoms including headache, dizziness, precordial distress, dyspnea, palpitation, leg pains, numbness, and backache. The complaints of these patients are usually diagnosed as belonging in the following categories: neurasthenia, fatigue syndrome, psychoneurosis, anxiety state, vasomotor instability, etc. When they are considered to have metabolic insufficiency, and are given the thyroidvitamin therapy, their symptoms are usually soon ameliorated.

The patient group included 160 men and 192 women. The average age was 60.3 years, and the age range was from 30 to 91 years.

No. of Patients

Age Groups

70 - 79	
60 - 69	
50 - 59	
40 - 49	
30 - 39	
	_

352

As the patients were drawn from the author's private practice, their diseases and complaints are

typical of the variety and complexity encountered by the average general practitioner. The threeyear period of continuous treatment was chosen as a minimum for evaluation because patients who have been treated for that length of time usually recognize the value of the treatment and are committed to the necessity of life-long continuance of therapy.

The Therapeutic Agents

The key to management of all the disorders specified above is the thyroid hormone: the primary aims are to stimulate the oxidative metabolism and so to regulate the lipoid metabolism as to prevent precipitation of cholesterol. To accomplish these purposes, the therapeutic agents were standardized.

Oxytropin

Composition and dosage: This tablet includes thyroid extract in varying dosages in combination with standardized amounts of oxytropic vitamin B factors and ascorbic acid. Oxytropin tablets are supplied in eight different thyroid potencies ranging from 10 to 60 milligrams, and are designated T 10, T 15, T 20, T 30, T 40, T 50 and T 60, to indicate the number of milligrams of thyroid extract in each tablet. These many dosage levels are available in order to enable the physician to increase the dosage slowly. Each tablet also includes the following vitamins:

Riboflavin 10 mg.
Thiamine chloride 20 mg.
Niacinamide 120 mg.
Ascorbic acid 100 mg.
Calcium pantothenate 10 mg.

The appropriate tablet, given in sequence to maximum dosage to meet the patient's changing requirements, is administered three times daily with meals.

These vitamin dosages are, of course, somewhat in excess of average daily requirements. During the development of this therapy (1938-1946), we found that these dosages were the most effective in enhancing the metabolic effects of the dessicated thyroid. In addition, these high quantities were deliberately selected in order to prevent the development of hypovitaminosis stemming from the administration of thyroid hormone. As is well known, these water-soluble vitamins cannot readily be stored in the body, and excessive amounts

are immediately excreted rather than accumulated.

It is most essential that these protective vitamins be given in standard amounts along with the thyroid extract. To put in another way, thyroid cannot be successfully or safely administered continuously without them.

Administration: The basic principle of administration is that the dosage level of thyroid extract must be raised slowly. The patient is started with a minimal dose-at the outset, the average chronically ill patient is given oxytropin T 10 three times daily with meals. He is receiving, then, a halfgrain of thyroid extract (30 mg.) daily. After a week or two the dosage is raised to oxytropin T 15, three times daily with meals, then to oxytropin T 20, etc. When the patient is able to tolerate oxytropin T 30, the interval between increases in dosage can be lengthened to three or four weeks. Often, the patient with this dosage, which totals 90 mg. (1½ grains) of thyroid daily, finds that many of his symptoms have been relieved. In such patients there may be no need to increase dosage further until some of the previous complaints recur. Frequently this dosage may prove adequate for maintenance of the older patient who may find himself uncomfortable at higher levels.

Nevertheless, it is the physician's task to determine the highest possible maintenance dosage for each patient, since it has become axiomatic that the greater the amount of thyroxin in the blood of the individual, the less likely it is for atherosclerosis to develop or recur. Furthermore, the patient whose dosage can be increased to oxytropin T 60 three times daily, (i.e., 3 grains of thyroid daily) seems to achieve a higher degree of stabilization as evidenced by fewer or no recurrences of his previous complaints.

When the patient's symptoms have been ameliorated, it is safe to assume that his maintenance dosage has been reached. This maintenance dosage must be continued indefinitely from then on, to ensure continuing prevention of metabolic imbalance and its sequellae. Otherwise, the patient returns within a few months to his previous level of poor health.

Lipotropin

Composition and dosage: Each oral tablet consists of: Choline dihydrogen citrate 422 mg., Inositol 134 mg., Pyridoxine hydrochloride 2 mg.

Experimental and clinical observations indicate that under certain circumstances, choline, inositol, and pyridoxine mobilize lipoids from tissue depots, thereby preventing excessive deposition of fat and cholesterol. In our own experience, moreover, these water-soluble members of the vitamin B complex also seemed to increase the effectiveness of thyroid, so that larger doses of oxytropin could be given at a faster rate than without the addition of lipotropin.

Unlike oxytropin, lipotropin is used in maximum dosage when the patient first begins treatment, and the dosage is gradually lowered to a very minimal maintenance level. The reason is that the average chronically ill patient usually comes into treatment with excessive amounts of lipoid substances stored within his tissues. These substances, including cholesterol, are to be mobilized from these depots and ultimately disposed of by intra- and extra-cellular metabolic routes. One of the properties of the lipotropic factors is to render these lipoid substances more soluble, at the same time keeping them in suspension extracellularly. There is evidence to indicate that a break-up of the macrochylomicrons into unesterified fatty acids permits their transport across the capillary membrane and thus more ready utilization.

Administration: The patient who is very severely arteriosclerotic is given 10 lipotropin tablets three times daily with meals (i.e., 30 per day) along with the oxytropin. This maximum dosage is rarely used except in the very ill, or in patients with endogenous hypercholesterolemia or essential xanthomatosis. Some of these patients have required this dosage for months; no over-dose or cumulative effect has ever been noted. Usually, however, such a dosage is continued only for three or four months, after which time the patient is considered unable to benefit further from this very high dosage and lower dosages are given.

The dosage of lipotropin in patients with moderately severe atherosclerosis is five tablets three times daily with meals. This dosage is continued for a few weeks, as are all the stepwise reductions. The patient is then continued on four tablets three times a day; then three tablets, and then two. The maintenance dosage is usually two tablets three times daily with meals.

In the majority of patients without focal atheromatosis, both the initial and maintenance dosage

is usually one or two tablets with each oxytropin tablet. We have followed this general rule: the older the patient, the more lipotropic factors required, especially during the earlier phases of treatment. The large majority of patients over 50 are taking two lipotropins with each oxytropin; those between 35 and 50, one lipotropin; patients under 35 are rarely given any lipotropin unless, of course, they present signs of hereditary hypercholesterolemia.

Cothyrobal (Parenteral Administration)

History: The oral therapy described proved singularly effective in the management of arteriosclerotic and other chronic disorders, and in reducing the serum cholesterol in the majority of patients. Nevertheless, we felt that further improvement might be achieved by the use of the thyroid hormone administered intramuscularly or intravenously. Such a preparation should assist in stabilizing serum cholesterol readings at a lower and narrower range, possibly through its effect on the cholesterol-regulating hormone of the pituitary gland.

With the greatest of caution, therefore, thyroxin was first administered parenterally in 1949. Sodium thyroxin alone was tried, but proved therapeutically impracticable because of uncomfortable side-reactions. Thyroxin mixed with liver extract or estrogen or crude vitamin B12 produced no noticeable beneficial effects when given intramuscularly.

The availability in 1950 of sodium thyroxin and crystalline B12, nearly simultaneously, provided an effective solution to our problem. We had already observed that intravenous injection of vitamin B12 produced in some instances a calming effect in the patient for several hours; the addition of sodium thyroxin did not interfere with this calming effect. Instead, the vitamin seemed to neutralize the usually uncomfortable side-reactions which had formerly accompanied intravenous injection of thyroxin alone.

Composition and dosage: Cothyrobal is not a substitute for, but rather an addition to, oral therapy. It is a lyophilized composition of sodium laevo-thyroxin (0.5 mg.), crystalline vitamin B12 (500 mcg.), calcium gluconate (100 mg.), and i.v. gelatin (5 mg.). The diluent is a 5 c.c. solution of calcium gluconate.

Administration: One ampule is injected at intervals ranging from one to four weeks; the highly tense patient is given two ampules. The young patient whose metabolism can be adequately maintained with oxytropin alone may require no parenteral therapy at all. Most patients over 40, who are constantly subjected to environmental stress, require the added protection of parenteral therapy.

Adjunctive Therapy

The thyroid-vitamin therapy does not replace specific remedies such as saluretics, digitalis, nitroglycerin, sedatives, antispasmodics, and antihistaminics. They are used wherever indicated, often proving particularly effective and comparatively free from side-reactions because of improvement in the individual's total metabolic state.

Case Reports

The records of the clinical program include numerous reports on patients with all major categories of chronic disease.² The four typical case reports presented here illustrate the effect of the treatment on the underlying atherosclerotic component in patients with multiple complaints and multiple syndromes.

Generalized Arteriosclerosis

The old arteriosclerosis wreck brought in by a relative or two, after a stroke or two, who has become a limited creature in every way and is a burden to himself and everyone around him, is not the type of patient to be treated by this method. Little improvement can be expected in one whose brain has been repeatedly scarred and whose metabolic pathways are irreversibly disturbed. Something must remain of an integrated personality in the individual to be treated, since there must be complete cooperation between patient and physician-a cooperation which can be difficult even in people with intact intellects. The type of patient who does best is illustrated in the following case history: After one has treated a variety of such patients, he may safely tackle the more difficult problems without frustration.

Case 1. J. C., male, 70 years of age, October, 1950. This man had been retired from his railroad job for several years, and had been a widower for one year. Since his retirement, he had gradually slowed down to a static, apathetic existence with death his only expectation. His physical symptoms, which included dizziness, headache, nervousness, etc., had not been relieved by rest and sedatives; his anxiety state was therefore accompanied by a valid feeling of discouragement, depression and defeat.

Clinical findings included cervical and lumbar arthritis, diverticulosis of the colon, slight cardiac enlargement, some tortuosity of the aorta, small parenchymal calcifications in both apices, calcification of the internal carotid artery, and some myocardial fibrosis with right bundle branch block. While these findings are not unusual in a man of 70, none of these evidences of chronic illness should in itself have been disabling. In association with a deficient metabolism, however, they combined to produce the typcial "old wreck" of 70.

Treatment consisted of oxytropin T 10 and two lipotropin tablets three times daily: 25 mg. of testosterons propionate intramuscularly; and soluble vitamin B factors intravenously. The oxytropin T 10, three times daily, was graded upward every few weeks to oxytropin T 40 within four months. This has been his maintenance dosage till the present (120 mg. of thyroid extract daily). In 1952, CoThyroBal replaced the intravenous vitamin B factors; it has been given at two-week intervals since then.

His initial plasma cholesterol reading of 250 mg./100 cc. has not fluctuated noticeably; it has ranged between 210 and 250 mg./100 cc, in the few readings he has had over the 12 years of treatment.

Progress: The patient became symptom-free within a few months and has remained so since. During the initial period of his metabolic adjustment, he was informed that his illness was not too serious and that he might well go on for many years. However, he was advised not to go on alone, but to seek seriously for a mate who could provide companionship and take his wife's place in some measure. This advice he followed, remarrying within the year. He has found a new joy of living which is apparent at each office visit and is a complete contrast to the apathetic, aged individual initially seen.

Comments: This patient, without serious focal atheromatosis, was selected because he was representative of the average retired worker. His age was a large factor in determining his attitude. The death of his wife created a loneliness which his metabolic insufficiency encouraged.

It is for this type of patient that doctors can wield great influence to create a new, alert, second life. Psychologic encouragement alone has proved fruitless in our hands; metabolic readjustment must first be attained. It is then, as we have shown, that the emotional readjustment can proceed with ease.

Diabetes Mellitus

The symptoms of most diabetics seem to be due primarily to a disturbance in the oxidative metabolism rather than in the glucose metabolism. That thyroid extract is not dangerous to the diabetic is evident. In fact, we consider it to be absolutely necessary to prevent or delay the atherosclerotic complications so common in this metabolic disease. We have given this treatment almost as a specific in diabetic retinitis. Most patients have done very well, with reduced insulin requirements and a lower-than-expected incidence of retinitis and peripheral vascular complications.

Case 2. J. D., male, age 69 in January 1949. The patient had diabetes mellitus complicated by arteriosclerotic gangrene of the left foot for which amputation had been advised. He was also found by electrocardiography to have had an old posterior wall infarction. The patient was placed on the thyroid-hormone-vitamin therapy, given thrice-weekly penicillin injections, and encouraged to be ambulatory. His black gangrenous toe was removed without anaesthesia as an office procedure: complete healing took place shortly thereafter. He returned to work within three months and worked as a watchman for five or six years longer.

Thirteen years later, the patient is still alive at age 83, with function still present in the affected leg.

Coronary Artery Disease

Coronary artery disease was diagnosed electrocardiographically in more than 100 patients, about half of whom had already suffered one or more episodes of myocardial infarction. Improvement, sometimes spectacular, followed the thyroid-vitamin treatment approach.

In this group particularly, merely to cite encouraging figures which statistically indicate a lower than expected mortality rate does not convey the increased probabilities for living that are available to the patient.

Case 3. E. H., white male, age 46 years when first seen September 1949. He had a familial and personal history of coronary disease, having suffered one occlusion seven and one-half years previously (April 1942) and a second at an unknown date. He complained chiefly of precordial distress at the slightest exertion and had numerous associated complaints. Findings referable to the cardiovascular system (early 1950) included "(1) Coronary arteriosclerosis with bimural myocardial infarctions, old, involving the posterior and anteroseptal walls; coronary insufficiency, moderate, evidenced by the positive exercise test. (2) Occlusive arterial disease, probably arteriosclerotic in origin, moderate arterial insufficiency involving the right lower extremity, evidenced by intermittent claudication, coolness, and absence of pulsation in the popliteal, posterior tibial, and peroneal arteries".

The patient was also found to have an enlarged liver, patchy vascular calcifications in the leg arteries, and cervical arthritis. His initial cholesterol reading was 355 mg./100 cc., indicative of hypercholesterolemia, with a cholesterol-phospholipid ratio of 355/347.

E. H. was placed on oxytropin-lipotropin therapy and reached a daily maintenance dosage of three T 60 oxytropin tablets (180 mg., or 3 grains of thyroid extract), and 12 tablets of lipotropin daily. Beginning in 1952, intravenous CoThyroBal, 1.0 mg. at least 3 times monthly, has been administered as well.

From the coronary standpoint, the patient has remained symptom-free for twelve years, with no further coronary occlusions or anginal complaints. Five years after beginning oral treatment, the patient's status was reviewed by a consulting cardiologist, who reported "definite objective improvement in the circulatory status of the right lower extremity, and . . . definite though less marked improvement in the coronary circulation". This improvement has been paralleled by freedom from the associated complaints with which he began treatment.

Laboratory evidence has also been instructive. His initial cholesterol reading was 355 mg./100 cc. Following adequate oral therapy, the average in 1951 (21 readings)

was 256 mg./100 cc. This level was further reduced to an average of 203 mg. in 1953, following 70 injections of CoThyroBal. In 1958, following a total of 163 injections of CoThyroBal, his average cholesterol determination has risen slightly to 225 mg./100 cc. In 1962, after a total of 296 CTB, his average level is 228.

Asthma

Asthma was one of several presenting complaints in 45 of the patients. Usually, its control is dependent on a combination of hormone-vitamin therapy and palliative therapy — the former serving to stabilize the chaotic state of metabolic imbalance; the latter aiding by tiding the patient over his acute exacerbations. In the following case, as in so many others, treatment of the asthmatic component was intimately linked with treatment of the total individual.

Case 4. G. I., male, age 55 in January 1950. The chief complaints of this successful munitions manufacturer were precordial distress, dyspnea, neck ache, excruciating headache, excessive appetite, polydypsia. Findings included: (1) coronary sclerosis, (2) bronchial asthma, (3) severe arthritis of the neck and lower spine, (4) gout, (5) old healed cyst of the left lung (possibly ecchynococcus), (6) essential hypertension, (7) narcolepsy and (8) laboratory evidence of (a) hypercholesterolemia, (b) markedly hypoglycemic glucose tolerance curve, accompanied by obesity (weight, 218 lbs.).

A patient such as this one, with multiple complaints based on multiple organic and functional disorders, could formerly be treated only on an ad hoc basis, with emphasis on relief of individual symptoms. Thus, previous therapy had consisted of a bronchial dilator for asthma, a combination of aspirin with codeine for neck pain, a specific migraine reliever for headache, an antihypertensive drug for hypertension, and a coronary dilator for precordial distress. The result was virtual therapeutic chaos.

In place of these agents, we placed the patient on the basic hormone-vitamin therapy. The maintenance dose at present is oxytropin T 60 and two lipotropin three times a day, and Enduron 5 mg.

Progress: Between 1952 and 1954, all of the patient's symptoms were under control, with the exception of those stemming from rare attacks of gout and asthma. Asthmatic attacks ceased entirely in 1954, and have not reappeared since. No treatment specific for asthma has been given since then. This is noteworthy because one attack in 1951 almost proved fatal.

With the administration of chlorothiazide, beginning in 1957, the patient's hypertension has been completely under control. Administration of the corticosteroid hormones has apparently eliminated the neck pains and gout. At present, the patient is more stabilized than ever. His narcoleptic spells are very infrequent; his dyspnea has been gone for years. While it has not been possible to control the obesity of this hypoglycemic individual, his weight has at least remained constant over the years. In short, this man now is an alert, useful human being of 67 years undeterred by a series of multiple complaints which a few short years ago had created intermittent periods of complete disability.

Discussion of Case Reports

The few cases described above are some of the very severely ill persons who became part of the research program. Seriously ill patients represent

only a very small part of the total research group. The vast majority of the patients have not reached these pre-terminal states when they present themselves for treatment; most of the members of the study group have been chronically ill for a relatively short period of time (one to five years) but have not responded to palliative therapy.

However, the case reports of the seriously ill provide some important observations:

- (1) Apprehension regarding continuous use of therapeutic doses of thyroid hormone intravenously in very seriously ill persons is unjustified and should be dispelled by the medical profession.
- (2) The use of thyroid hormone, effective in delaying the development of the atherosclerotic component in very seriously ill patients, should be employed prophylactically in the average patient as well, even when apparently euthyroid, to prevent focal atherosatosis and to relieve present symptoms of illness.

Statistics

This research program was begun in 1948 (14 years ago). Some of the patients in the original group had already been taking thyroid-vitamin mixtures for as long as 20 years, and more patients started the treatment each year. For the purpose of illustrating the effects of the prolonged therapy, only those patients who have been under treatment constantly for at least three years are being considered in this statistical analysis.

This group is composed of a total of 352 patients who have received oral thyroid-vitamin therapy for periods ranging from three to 24 years; the average length of time of treatment is 12.6 years. Ages range from 30 to 91, the average age being 60.3 years.

Therapeutic Agents

These patients have orally consumed thyroid-vitamin mixtures containing more than 3,500,000 grains of thyroid; since 1951, they have received at least 65,000 intravenous injections of a thyroxin-vitamin B12 combination (Cothyrobal). These figures should finally eliminate confusion concerning thyro-toxicity. Thyroid is not toxic when administered in the manner described in this report.

Mortality and Morbidity

Of the 352 patients, 19 stopped treatment for a variety of reasons other than death. In the 333

patients available for follow-up study, there have been 12 deaths in the past three years. This is a mortality rate of only 1.2 per cent.

The incidence of morbidity has also been far lower than would ordinarily be expected in such a group of patients: one case of mild cerebral thrombosis and three of coronary occlusion, all followed by recovery, have occurred in the past three years.

These low mortality and morbidity rates were achieved despite the fact that 70 per cent of the patients started treatment with definite organic disease. This indicates that the goal of the treatment—administration of thyroid hormone in large enough doses to prevent or delay fatal focal atheromatosis—is being achieved.

Discussions

Comparative Statistics and Control Studies

There are no truly comparative statistics, for when this program of treatment was started, the concept that thyroid hormone could be continuously administered in therapeutic doses for long periods of time was radical, experimental, and untried. That such a treatment is not only possible but also beneficial is only now being generally recognized. One of the few studies providing presumptive confirmation is Broda O. Barnes' recent report on 950 subjects,3 who were given thyroid extract prophylactically for from two to ten years. The statistics on these subjects, a considerably lower age group than ours, are compared with those of the Framingham studies. Barnes' thyroidtreated subjects had a markedly lower incidence of coronary disease than that shown in the Framingham studies for the general population. Also, Henry Russek⁴ administered the thyroid-vitamin mixtures used in the present study to a selected group of 45 patients with coronary disease for a two-year period. Not only was the complete safety of the therapy confirmed; but also, there were no deaths in his patients during the two-year period.

Our 14 year clinical research program was designed to test the effectiveness of the thyroid-vitamin approach in both controlling and preventing the development of atherosclerosis. Short-term effectiveness as shown by alleviated symptoms and improved well-being is readily observed on examination of individual case reports. Such results can

be checked by the use of double-blind control studies. However, the goal of the therapy is far more than immediate, easily measurable improvement; and its final effectiveness can be determined only according to long-range consequences of added, useful life expectancy. The difficulties of carrying out control studies are therefore practically insurmountable and are certainly prohibitory in any uninstitutionalized patient group.

Kountz⁵ has found a markedly lower death rate in thyroid-treated patients compared to control groups in a large series of institutionalized patients. Fortunately, although placebo control studies have so far been impracticable, this therapy as well as others seeking long-term results tends to prove itself; the findings reported here of unusually low mortality rates and steady improvement in symptomatology should be equally obvious to other investigators in the future.

The use of thyroid hormone in euthyroid patients

About 80 per cent of the patients in this study were euthyroid by accepted laboratory standards. Their PBI's ranged between 4.5 and 8.0. These "normals" have been accepted over the years; they have been found routinely in people who are apparently healthy; they may well be normal for the average person who retires at 65 with a moderate amount of atherosclerosis, and dies at 70 of a severe focal atherosclerotic complication. Since the majority of people who die of cholesterol atheromatosis have been euthyroid in the accepted sense, and since the results of this study show that relatively large doses of the thyroid hormone seem to delay atherosclerotic complications when administered to euthyroid patients, a re-evaluation of euthyroidism in relation to atherosclerosis is in order.

It would be a radical departure from rational therapy if the treatment herein described rendered the patient hyperthyroid. However, the administration of three grains of typroid daily, and the intravenous injection of thyroxin prescribed in the manner reported here, leaves the patient euthyroid. (The PBI's range from 6.0 to 9.0 in the patients having this treatment.) Thus, the thyroid hormone—a most valuable therapeutic tool, heretofore unsuitable for prolonged prophylactic use because of uncomfortable side-effects—has now become available for sound therapeutic use in cholesterol atheromatosis.

The exact mechanism by which the thyroid-vitamin therapy achieves its important effect of inhibiting the atherosclerotic process can be only partially understood. A complete explanation must await further laboratory research and may never be found. This is true of many proven therapeutic agents, such as aspirin. Meanwhile, the clinical results fully substantiate the integrity of the basic approach of the program.

The evidence further shows that the current search for analogues of thyroxin that will eliminate side-effects is completely unnecessary. There is no reason to search for a substance resembling laevo-thyroxin when the latter, the natural secretion of the thyroid and unquestionably compatible with cellular metabolism, is both free of undesirable side-effects and therapeutically effective when administered as described here.

The cholesterol controversy

Considerable unfortunate confusion has been created by lack of understanding concerning cholesterol's place in the whole picture of chronic vascular disease. Cholesterol is one of the most important lipoids; without this ancestral compound there would be no life. Although autopsy findings show it to be associated with arteriosclerosis, the greatest cause of death in our civilized society, it is not in itself responsible for death. As this clinical research program has helped to prove, it is the inability of the body properly to metabolize cholesterol that leads to disability and death from cholesterol atheromatosis.

Lowering blood-cholesterol levels without improving the oxidative metabolism of the whole body is a futile approach to the problem. Substances such as MER-29, which interfered with the formation of cholesterol, or unsaturated oils, which slightly decrease the amount of cholesterol which is resorbed from the intestine, do not improve the patient's oxidative metabolism; and the end-result, atherosclerosis, occurs gradually or rapidly despite the lowering of the cholesterol level.

Thus, drugs which specifically lower cholesterol, and diets or dietary adjuncts which temporarily lower cholesterol levels are of insignificant value; they are harmful in their oversimplification of the problem, focusing the concern of physicians and laymen on a single distorted facet of a highly complex problem. Arthur M. Master, at the AMA

Convention at Chicago in July, 1962, placed this controversy in the proper perspective by pointing out what we have long contended: that the danger of cholesterol in the diet, and the supposed necessity of substituting polyunsaturated fats, have been unjustifiably overemphasized and given undue prominence.

In the course of the program, more than 100,-000 blood-cholesterol determinations were done, on hundreds of patients. These and other laboratory findings have been reported in detail previously; in this report the emphasis is deliberately on therapeutic results. While the information obtained from frequent and long-term cholesterol determinations is of extreme value in assessing the effectiveness of a therapeutic approach and program, an occasional reading in an individual is of no value and can be harmful if misinterpreted.

Cholesterol measurements are therapeutically useful only when they are taken often enough to indicate an individual cholesterol pattern. A person's blood-cholesterol level at any given time reflects many factors other than development of heart disease—individual hereditary pattern, diet, and the natural day-to-day fluctuations must all be considered. A blood-cholesterol level of 320, while above the *average*, may well be normal for some individuals and is even low for those with hereditary levels from 350 to 400.

The seeming paradox of a patient with hypercholesterolemia remaining in good health though overeating, while a hypocholesterolemic patient develops a coronary occlusion, illustrates the fallacy inherent in over-emphasis of individual cholesterol readings.

Therapy clearly should not be directed specifically toward lowering cholesterol levels. Only constant treatment which improves the lipoid metabolism through improvement of the total metabolism can effectively prevent or delay the development of atherosclerosis.

In view of the above considerations, the following approach to diet has been used in the clinical research program: (1) The patients with severe atherosclerotic disease, whether or not their cholesterol levels are high, are asked to lower their caloric intake to levels which keep them from gaining weight. They are asked to lower their total fat intake, as, if de-cholesterolization is to take place, it is irrational to consume large amounts

of fats which increase the absorbtion of cholesterol and could interfere with de-cholesterolization. (2) As they reach an improved metabolic status, with the gradual increase of thyroid-vitamin dosages, they are allowed to eat a balanced diet which contains moderate amounts of milk, eggs, butter, and cream. If there is a tendency to gain weight, fats and butter should be limited, primarily because they are the foods of the highest caloric value. (3) These concepts of diet are tied with the concept of exercise: the more exercise, the greater the number of calories one can consume. Each individual must take the responsibility for maintaining a relatively constant weight, adjusting his dietary intake according to his work and exercise.

Thus, diet and exercise are important in the metabolic readjustment of the individual who wishes to delay atherosclerotic complications. However, these two factors alone may mean very little. When combined with treatment effective in correcting basic metabolic disorders, proper diet and exercise contribute significantly to achievement of optimum metabolic balance.

Summary and Conclusions

A continuous clinical research program of treatment starting 14 years ago has been described. The 352 patients, whose average age was 60.3 years, were given thyroid-vitamin therapy for periods of from three to 20 years (for an average of 12.6 years). The detailed case-reports show the manner in which the underlying atherosclerotic component of a variety of chronic illnesses (coronary disease, hypertensive disease, arthritis, asthma, duodenal ulcer, diabetes mellitus, myocardial disease, cerebral atherosclerosis, etc.) was effectively treated.

More than 3,500,000 grains of thyroid extract (combined with specific oxytropic vitamin B factors and lipotropic B factors) and more than 60,000 injections of a thyroxin-B12-gelatin mixture parenterally have been administered to these patients: these medications have been taken continuously.

The annual death rate of 1.2 per cent and the annual morbidity rate (cerebral accidents, coronary occlusions) of less than one per cent were both extremely low.

The following facts have been definitely proven:

- (1) Therapeutic doses of thyroid extract orally and thyroxin parenterally can be taken continuously and without uncomfortable side-effects when prescribed with large doses of B-vitamin factors and administered in the manner described herein.
- (2) The atherosclerotic processes are prevented, halted, or at least delayed.

The following conclusions are evident:

- (1) The symptomatic improvement which occurs in such a variety of chronic diseases shows that most symptoms are not the result of the chronic disease but are primarily due to the metabolic insufficiency present in these diseases.
- (2) The halting of atherosclerotic complications in patients with severe atherosclerosis indicates that this treatment could be most useful in preventing the focal atheromatosis in persons starting treatment free from organic disease. Thus, coronary disease can be greatly reduced or delayed by this treatment of the metabolic factor.
- (3) Euthyroidism must be re-evaluated! Since a majority of people who develop atherosclerosis are euthyroid, and since a majority of the patients in this group were euthyroid and yet needed and benefited from large doses of the thyroid hormone, it is apparent that the current concept of giving thyroid only when clearly indicated should be changed.
- (4) That laevo-thyroxin, combined properly with B-vitamin factors, can be used year after year without toxic effects, makes the search for thyroxin-analogues completely valueless.

(5) The lowering of blood cholesterol levels is but a partial approach to the problem of coronary disease. To be truly effective in preventing or delaying the development of atherosclerosis, therapy must consistently provide enough thyroid hormone to improve the metabolic utilization of cholesterol.

Finally, from a review of this study, it seems probable that the day is not far off when the tremendous value of thyroid hormone will be generally recognized and will lead to further advances in the search for ways to improve and prolong human existance.

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The Doctor as a Creative Writer*

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Francis Brett Young (1884-1954) was another well known English physician-novelist whose greatest novel, My Brother Jonathan, like Of Human Bondage deals with medical life. Portrait of Clair and Mr. and Mrs. Pennington are two other novels by Dr. Young which proved very popular.

Warwick Deeping

Another author belonging to the same group was Warwick Deeping (1877-1950), whose greatest novel, Sorrel and Son, also deals with medical life. Dr. Deeping was the son and grandson of physicians. He received his medical training at Cambridge, but he was more interested in literature than medicine. During the First World War he served in Gallipoi and France in the Royal Army Medical Corps. After the war, Dr. Deeping devoted himself to fiction writing, producing The Ten Commandments, Stories of Love and Courage, Roper's Row, Seven Who Came Back, and other notable novels.

Within recent years, another doctor has joined the ranks of English doctor-novelists. He is Archibald Joseph Cronin. Dr. Cronin was born in Cardross, Scotland, in 1896. His medical education at the University of Glasgow was interrupted for two years during the First World War while he served as surgeon sub-lieutenant in the Royal Navy Volunteer Reserves. After four years of practice in South Wales and a year of study of pulmonary diseases in the coal fields for the

Ministry of Mines, he moved to London and built up a successful practice in the West End. In 1930 an enforced vacation gave him the opportunity he had long wanted to write a novel. At the end of the three months, the novel, a quarter of a million words, was finished and mailed to a publishing house, to be accepted immediately. That novel was Hatter's Castle, which critics compared with the works of Dickens, Hardy, and Balzac. Two years later, with two more successful books to his credit, he was firmly established as a novelist and had given up his medical practice. The Stars Look Down followed in 1935. In 1937, his fifth novel, The Citadel, dealing with the life of a doctor, became very popular. In 1941, The Keys of the Kingdom attracted wide attention. This was followed in 1944 by The Green Years. In 1948 his novel, Shannon's Way, also dealing with medical life, became a best seller. Since then other popular novels have followed regularly from his pen.

One woman physician attained a reputation as a novelist with a novel entitled *Doctor Serocold*. She was Dr. Helen Johnson, who wrote under the name of Helen Ashton. She received her medical training at London University, but after her marriage retired from medical practice to devote herself to writing. Besides *Doctor Serocold*, she wrote *Far Enough* and *A Background for Caroline*.

Richard Austin Freeman

Some of the best writers of detective stories have been physicians. When Sir Arthur Conan Doyle died, his mantle descended upon the shoulders of Dr. Richard Austin Freeman, creator of

^{*}This is the final section of a three-part article on "The Doctor as a Creative Writer." The first two sections appeared in the November and December, 1962, issues of SOUTHWESTERN MEDICINE.

Dr. Thorndyke, whose adventures are known to millions. In his day, Dr. Freeman was a leading practitioner of the detective story. He was born in London, Nov. 26, 1862. He received his education at the Middlesex Hospital Medical School and in 1886 was admitted as a member of the Royal College of Surgeons and a licentiate of the Society of Apothecaries. One year later he went to Accra, on the west coast of Africa, to take an appointment as an Assistant Colonial Surgeon. In 1888 he was admitted to a mission to Ashanti as medical officer, surveyor and naturalist. He contracted blackwater fever and was invalided home in 1892. For five years he practiced medicine in England, and at one time was Deputy Medical Officer of Holloway Prison. Dr. Freeman was a man of many talents, being a landscape and marine painter, a sculptor, a plaster moulder, a worker in wood and metal, and a bookbinder. Devotees of the detective story are very grateful that he also was a writer of such stories.

Among American physician-authors are several that deserve mention. Dr. John Rathbone Oliver, physician, priest, criminologist, and novelist, wrote some of the most significant fiction of the day. His *Victim and Victor* and *Fear* are still best

sellers. Dr. Oliver led a full and satisfying life. He was a psychiatrist, a priest, a professor of medical history at Johns Hopkins University, and a novelist of great power.

Unique Doctor-Author

A unique American doctor-author was Charles Alexander Eastman, a full-blooded Indian who wrote some very interesting stories of American Indian life. His books, Smoky Days, Wigwam Evenings, The Red Hunter, and The Animal People, enjoyed worldwide popularity.

Another American physician who has become widely read as a novelist is Frank Slaughter, who practiced surgery before he decided to devote his time to writing fiction. He has written a score of very popular novels, among them, That None Should Die, East Side General, Battle Surgeon, Spencer Bade, M.D., The Golden Isle, In A Dark Garden; most of which deal with medical life.

Today many physicians are attaining fame as writers of fiction in many countries. They are producing some of the best and most popular fiction. The art of medicine and the art of fiction continue to be happily wedded.

N. M. County Medical Society Officers To Meet in Santa Fe

A one-day session for county medical society officers in New Mexico will be held in Bishop's Lodge at Santa Fe, January 19. Subjects on the agenda will be "What Is Our Legislative Program?", "What Is Being Done to Implement Kerr-Mills?", "What Do Grievance Committees Do?", "Who Do You Know?", "What Is the Malpractice Problem?", and "A Coin with Two-Heads; Press Relations". Will Harrison, Santa Fe, syndicated columnist, will be the banquet speaker.

Penicillin Anaphylaxis Prevention

W. E. LOCKHART, M.D., Alpine, Texas

More than sixty patients die of penicillin anaphylaxis in the United States each year. Many cases are not recorded as such. Four cases of severe, immediate anaphylactic reaction to penicillin without a fatality have occurred in my office. In each instance the patient stated "I am not allergic to penicillin — I have had it many times before". A positive history of allergy is valuable, but a negative history is not dependable.

At a later date in each of my four cases I performed a simple scratch test, using a drop of penicillin suspension on the skin of the forearm and scratching with a hypodermic needle. In each of the four cases an immediate urticarial wheal developed, and one patient felt ill merely from the test.

Such a scratch test probably will not detect all cases of penicillin allergy, but it will detect those most important cases of severe hyper-sensitivity and will prevent deaths from penicillin anaphylaxis.

401 N. Fourth St.

Pioneer Physician Dies

Dr. H. W. Sellers, Lordsburg, N. M., pioneer southwestern physician, died in Lordsburg Dec. 17 at the age of 78. He had been active in the Southwestern Medical Association for many years and was a member of the association's executive committee.

AMA Commends AAMA

The El Paso County Chapter of the American Association of Medical Assistants performs a worth-while service to the medical profession in this area. Membership in the organization would prove rewarding to medical assistants in El Paso.

-Editor

Physicians really do appreciate the work of their medical assistants. They even appreciate their official organization.

To prove it, members of the American Medical Association's House of Delegates at the 1962 Clinical Meeting in Los Angeles officially patted medical assistants on the back and offered to support their organization.

A special resolution spelled out the thanks of the medical profession. This resolution stated that the AMA appreciated the work of the American Association of Medical Assistants "for the dedicated and unselfish assistance and work in the combined goals of the two organizations in continually striving to improve the character of medical standards."

Further, the AMA resolution emphasized that the AMA "wholeheartedly endorses the program and functions of the American Association of Medical Assistants and encourages every physician who has in his employ or under his supervision medical assistants who are eligible for membership in the American Association of Medical Assistants to urge all these assistants not only to join the American Association of Medical Assistants but to actively participate in their programs".

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Official Journal of The Southwestern Medical Association,
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and El Paso County Medical Society

IN THIS ISSUE

Α	Clinical	Investigation	of Crossed	d Control
	in a	Residential	Treatment	Center.

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February, 1963







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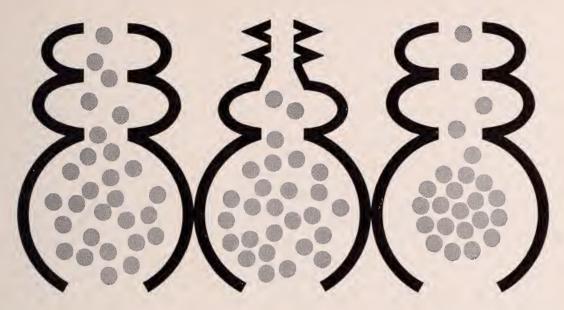
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 Chemical Structure and Pharmacological Activity, J. Pharm. Pharmacol. 9:381-400 (June) 1957.

Cayer, D., and Sohmer, M. F.: Long-Term Clinical Studies with a New Constipating Drug, Diphenoxylate Hydrochloride, N. Carolina Med. J. 22:600-604 (Dec.) 1961

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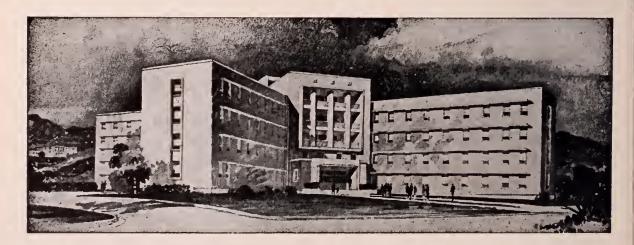
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Scott and White Clinic, Conference in Medicine and Surgery, Temple, Texas, Mar. 3-5, 1963.

American Medical Association, Medicolegal Symposium, Americana Hotel, Miami Beach, Fla., Mar. 8, 9, 1963.

Second Annual New Mexico Psychiatric Seminar, Albuquerque, March 22 & 23, 1963.

American College of Allergists, Graduate Instructional Course and 19th Annual Congress, Americana of New York, New York City, March 24-29, 1963.

Oklahoma Tuberculosis Association, "Fourth Oklahoma Colloquy on Advances in Medicine: Pulmonary Insufficiency," Oklahoma City, Mar. 28-30, 1963.

National Association of Recreational Therapists, Annual Conference, Oklahoma Center for Continuing Education, Norman, Okla., April 8-12, 1963.

New Mexico Medical Society, 81st Annual Meeting, Western Skies Hotel, Albuquerque, April 24-26, 1963.

United States-Mexico Border Public Health Association, Annual Meeting, Nogales, Ariz., April 29-May 2, 1963.

New Mexico Chapter, AAGP, Ruidoso Summer Clinic, Ruidoso, N. M., July 15-18, 1963.

American Academy of Physical Medicine and Rehabilitation, Annual Meeting, Sheraton-Dallas Hotel, Dallas, Aug. 26, 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

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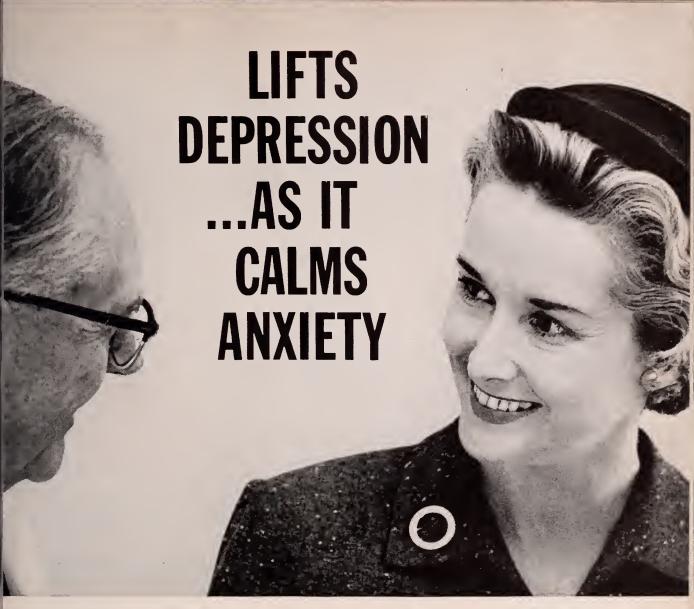
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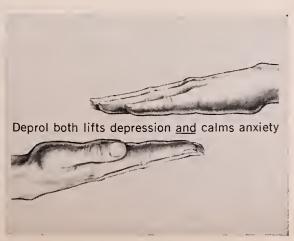


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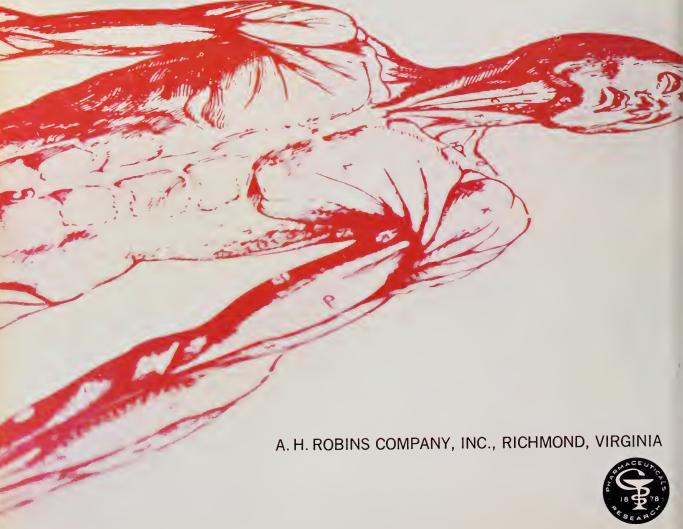
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Dorothy E. Berner, B.S., Consulting Orthoptic Technician
Marguerite B. Horn, M.A., Language Development Psychologist

The Devereux Schools, Devon, Pennsylvania

The Problem

The retirement of Dr. and Mrs. Berner from active practice of ophthalmology and orthoptics in late 1959, allowed the language development psychologist of the Devereux Schools to achieve a long held ambition to initiate a meticulous survey of the students' visual problems including recognition and treatment of crossed control, as described in Berner (1938), Berner (1953).

The present activity of the research team (the authors) includes screening, recognition and treatment of every visual problem of the eastern branch of this residential special school. The entire scope of this work would require several papers; this one is limited to the recognition and treatment of crossed control.

The available school population is one of 750 children and young adults with problems which hinder development in normal family-academic environment, but in whom there is generally potential for education. No one could be sure that the intensive, usually parent controlled program devised by the Berners in private practice could be successful in a boarding school environment. Successful operation of this program depended upon the cooperation of the housemothers, unit nurses, physicians, special therapists, all academic faculty, and shop and gymnasium instructors. Procedures

- A typical treatment program involves the following:
- I. Detection of a possible crossed control problem by review of accumulated data:
 - A. Pre-enrollment professional reports.

- **B.** Reports originating at Devereux including:
 - 1. Social Service intake reports
 - 2. Psychiatric evaluations
 - 3. Psychological evaluations
 - 4. Medical examination
 - 5. Special Psychological Survey
 - 6. Unit reports
- II. Formal crossed-control screening followed by the psychologist's "Report of Language Development Evaluation" incorporating the information in the above reports.
- III. Unit Professional Team recognition of the student's suspected functional visual problem, supported by the Unit Team's considered approval for further study (orthoptic and/or crossed-control) and treatment.
- IV. Medical Department letter to parents, requesting parental consent for ophthalmological studies.
 - V. Parental response.
- VI. Psychologist's resume of the pertinent data for the use of the ophthalmologist.
- VII. Discrete ophthalmological examination with full consideration of functional binocular visual involvements.
- VIII. Comprehensive Diagnosis and recommendations for glasses and/or treatment reported by the ophthalmologist.
- **IX.** As recommended by the ophthalmologist, a more detailed evaluation by the orthoptist assisted

by the psychologist for consideration of orthoptic treatment and/or crossed control treatment.

X. Specific recommendations written on individual cards for full and complete distribution to all staff involved in the treatment.

XI. Medical Department communication with parents concerning findings and recommendations.

XII. Consistent and continued treatment of student by all staff as recommended by the ophthalmologist and as communicated to the parents by the Devereux Medical Department, following Unit Team approval for full Berner program study and treatment.

XIII. Continued diagnostic study with changes in recommendations reported to staff on revised student cards, as required.

XIV. Follow-up reports by the ophthalmologist to the Medical Department.

XV. Medical Department communication with parents.

The above program is implemented by teaching the child correct behavior in various situations where crossed control is a factor. In addition, individual cards as mentioned above with detailed instructions are given to all staff who come in contact with the student. Two sample cards follow, one with involved instructions and one less detailed.

#1 NAME DATE

Left sided training.

Wear glasses at all times except swimming. Guard for sports, where required. Practice throwing and batting left handed. Some of winter physical education periods should be used for this. Introduce competitive play only after he has learned to use his left hand.

Switch batting and throwing contra-indicated.

Special convergence exercises before and after reading periods. Reading therapy. Special reading period — 1 hour 4 days a week. Insist upon the use of left hand as primary hand in all activities. No right-handed hockey — no print shop.

#2 NAME DATE

Wear glasses at all times except for swimming.

Not every student with crossed control can be treated. Emotional disturbance may contraindicate the type of activity required by this program. However, in the first year, it was possible to initiate and continue for a reasonable time, treatment of 28 young people with crossed control. Treatment of crossed control was advised for 16 more, many of whom are now being treated.

The group is too diverse and accumulated data too incomplete to offer experimentally controlled statistical results, but the individual gains for the crossed control patients (at the time of achievement tests in April, 1961) were generally greater than on previous testing.

Patient: Male, age 17 (Case No. 1)

Psychiatric Diagnosis: Chronic brain syndrome associated with brain trauma; with behavior reaction.

Psychological Diagnosis: Expressive Intellectual Maturity; verbal, average (93 IQ); non-verbal, low average (87 IQ). He presents organically based specific learning disabilities with concurrent emotional disturbance of psychotic proportions with sado-masochistic, schizoid and paranoid tendences noted.

Control Pattern

Handedness	Eye Dominance	Eye Control
Unestablished,	left	left
but mainly left		

Comment: He had glasses which needed no change, but he wore them inconsistently.

Treatment: Wear glasses at all times except swimming; guard for sports, where required; practice to throw and bat left handed (switch batting and throwing forbidden); special convergence exercises before and after reading periods; reading therapy; special reading one hour four days a week. No right handed hockey — no print shop.

Results

Achievement Testing (CAT)

Date	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
5/60	4.5	6.1	5.3	5.7	5.0 Elem.
5/61	5.0	7.4	6.2	5.9	5.7 Elem.

Intelligence Testing (W B-I)

Date	Verbal	Performance	Full Scale
5/60	90	65	76
10/61	93	87	89

Took and passed first State High School Equivalent examination (U. S. History).

Patient: Male, age 13-5 (Case No. 2)

Psychiatric Diagnosis: Learning disturbance — schizoid personality.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, high average (116 IQ); nonverbal, high average (110 IQ). Obsessive-compulsive personality with schizoid features. Possible latent schizophrenia. Neurological Diagnosis: Developmental alexia.

Control Pattern

Handedness	Eye Dominance	Eye Control
right	right	left

Comment: He had received glasses five months before treatment started. They were correct, but he was using them too little for significant help. The glasses corrected a greater astigmatism in the right eye than in the left and their constant use could be expected to reverse the crossed control present when he did not use the glasses. This change did not take place as completely as we wished and in January 1961 he was asked to cover his left eye when viewing television.

Treatment: Wear glasses constantly; limit motor use strictly to right side; continue reading therapy. Switch batting and throwing is forbidden.

Results

Achievement Testing (CAT)

_Date	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
9/59	2.0	2.3	2.2	4.1	3.0 U.Pri.
5/60	*3.6	*2 .3	*3.0	5.7	4.2 Elem.
	*Lowe	r Prima	ary		
5/61	3.1	4.6	3.9	**7.8	5.1 U.Pri.
	**Elem	entary			

Intelligence Testing (WISC)

Date	Verbal	Performance	Full Scale
9/22/59	116	110	115

Based on his break-through in reading, New York State is subsidizing, in part, some of his tuition.

Patient: Female, age 14-3 (Case No. 3)

Psychiatric Diagnosis: Adjustment reaction of childhood, conduct disturbance, with depressive and passive-aggressive features.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, average (107 IQ); non-verbal, superior (127 IQ). Expressive Social Maturity, at

about eleven years (80 S. Q.). Present studies suggest an hysterical neurotic pattern rather than a schizophrenic reaction.

Control Pattern

Handedness	Eye Dominance	Eye Control
right	left	left

Comment: She had poor vision of the right eye (without glasses) and thus had automatic crossed control if she did not wear glasses. She had a new prescription, correcting nearsightedness in the right eye and a minor degree of mixed astigmatism in the left eye.

Treatment: Wear glasses at all times except swimming.

Results

Achievement Testing (CAT)

Date	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
10/60	11.0	9.8	10.4	9.7	10.9 Adv.
5/61	11.5	10.9	11.2	11.4	11.8 Adv.

Intelligence Testing (W B-11)

Date	Verbal	Performance	Full Scale
11/8/60	107	127	120

Took and passed the State High School Equivalent examination in English I. Transferred to high school unit.

Patient: Male, age 19-3 (Case No. 4)

Psychiatric Diagnosis: Schizophrenic reaction, paranoid type.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, marginal (77 IQ); non-verbal, marginal (70 IQ). Intellectual retardation possibly on an organic basis with a constricted, dependent personality structure.

Control Pattern

Handedness	Eye Dominance	Eye Control
Some right	right	right
hand use and		
left hand writing		

Comment: Because the vision of his left eye could not be improved to normal, it was decided to ask him to change to his right hand and establish unilaterality on the right side.

Treatment: Glasses for constant wear. Changed writing to right hand and kicking to right foot.

Achievement Testing (CAT)

Date	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
5/60	7.0	7.4	7.2	5.8	6.8 Elem.
5/61	7.5	7.7	7.6	5.7	6.7 Elem.

Intelligence Testing (WAIS)

Date	Verbal	Performance	Full Scale
10/27/59	77	70	72

His language gain was not excellent but his academic achievement was consistent with his functional intellectual ability. His personal sense of well-being indicated that he profited from crossed control treatment.

Patient: Female, age 14-8 (Case No. 5)

Psychiatric Diagnosis: Cyclothymic personality —mirror vision.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, marginal (79 IQ); non-verbal, average (94 IQ). Immaturity reaction characterized by exaggerated dependency needs. Wide mood swings with periodic depressions.

Control Pattern

Handedness	Eye Dominance	Eye Control
Left hand for writing	Unestablished,	Right-near
Right hand for	mainly right	point
cutting		Left-far point

Comment: She had a history of a four-year effort to make her right handed. Because of her strong left hand preference, it seemed best to make her unilateral on the left side.

Treatment: Glasses at all times except swimming; guard for sports where required; patch over right eye for reading therapy; special reading one hour four days a week; television; retraining to cut easily and skillfully with her left hand. No right handed hockey.

Results

Achievement Testing (CAT)

Date	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
5/60	3.5	2.4	3.0	5.1	4.1 Elem.
5/61	4.6	5.3	5.0	6.2	5.5 Elem.
Intellige	ence Test	ting (W	ISC)		

Date	Verbal	Performance	Full Scale
11/4/59	79	94	85

Gains in personal deportment were noted soon after treatment began; some nervous stability and personal relaxation achieved. Returned to her home.

Patient: Male, age 17-9 (Case No. 6)

Psychiatric Diagnosis: The special symptom reaction — dyslexia — associated with moderate depression.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, average (108 IQ); non-verbal, average (107 IQ). Extremely variable performance, with some functions at superior level and others at defective level. Usual indices of brain damage absent. Marked under-lying depression based on deep resentment about his total situation.

Control Pattern

Handedness	Eye Dominance	Eye Control
right	right	left

Comment: Severe dyslexia accompanied by deep feelings of resentment, anxiety and discouragement by years of failure.

Treatment: Patch over left eye for reading therapy, while writing a letter almost every night, television, small jobs in afternoon.

Results

Achievement Testing (WRAT)

Date	Reading	Arithmetic	
9/24/59	1.9	5.1	
	(9 words)		

Achievement Testing (CAT)

Date	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
5/60	No	testing			
5/61	2.9	3.2	3.1	4.8	— U. Pri.

Intelligence Testing (WAIS)

Date	Verbal	Performance	Full Scale	
11/2/59	108	107	108	

Marked improvement in reading in first two months (June and July, 1960). Serious psychiatric difficulties precluded further treatment for nine months, at which time he took the routine achievement tests. Initial improvement survived, as indicated by test scores.

Patient: Female, age 17-5 (Case No. 7)

Psychiatric Diagnosis: Inadequate personality manifested by truancy and poor home adjustment.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, average (100 IQ); non-verbal, average (90 IQ). Long intense deprivation of

emotional needs, extensive rejection and fear of abandonment has resulted in an impaired ego and inadequate personality development. Unconscious hostility toward parents has been turned inward by a severe superego, resulting in guilt, depression and self-destructive tendencies.

Control Pattern

Handedness	Eye Dominance	Eye Control
right	right	left

Comment: Achievement testing done in December, treatment started in October. Her roster of academic subjects did not include reading.

Treatment: Glasses for constant use except in sports.

Results

Achievement Testing (CAT)

Date_	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
5/60	7.6	7.5	7.6	7.0	6.9 Jr.H.
12/60	8.6	7.5	8.1	7.3	7.3 Jr.H.

Intelligence Testing (WAIS)

Date	Verbal	Performance	Full Scale
3/7/60	100	90	96

She left the school in late January, at which time unilateral control (right side) was established, with normal right eye reading.

Patient: Male, age 15-4 (Case No. 8)

Psychiatric Diagnosis: Birth trauma with psychotic reaction and/or neurotic reaction.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, high average (117 IQ); nonverbal, low average (87 IQ). Borderline adjustment with predominant obsessive compulsive and schizoid traits. Some subtle improvement over former condition.

Control Pattern

Handedness	Eye Dominance	Eye Control
right	right	left

Comment: Glasses were prescribed for nearsightedness and nearsighted astigmatism, greater in the right eye. It was expected that the use of glasses would bring about unilateral control (right side).

Treament: Glasses for constant use.

Results

Achievement Testing (CAT)

Date		Compre- hension	Reading Total	Arith- metic	Total
5/60	8.4	9.6	9.0	8.7	8.0 Jr.H.
5/61	10.3	13.3	11.8	10.0	10.3 Jr.H.

Intelligence Testing (W B-I)

Date	Verbal	Performance	Full Scale
11/9/58	105	83	94
2/20/62	117	87	103

Gains noted must be attributed to the improved vision and the establishing of unilateral control. Promoted to high school unit 9/7/60. Took and passed the following State High School Equivalent tests (6/61):

Subjects	Credits
Civics	1
English I, II, III	3
Business Arithmetic	1
General Science	1
Algebra	1

Patient: Female, age 24-2 (Case No. 9)

Psychiatric Diagnosis: Mental deficiency, mildinadequate personality.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, low average (83 IQ); nonverbal, marginal (77 IQ). Inadequate personality with marginal intelligence, mild intracranial organic pathology with some potential for periodic regression and psychotic-like forms of behavior under emotional stress.

Control Pattern

Handedness	Eye Dominance	Eye Control
left	right	right

Comment: Complaints of blurring and double vision. Glasses were prescribed to correct far-sightedness and a minor astigmatism of the left eye. This astigmatism had caused the poor functioning of the left eye, it's occasional suppression and frequent double vision and the mixed control.

Treatment: Glasses for constant wear.

Results

Achievement Testing (CAT)

Date	Reading Vocabu- lary	Reading Compre- hension	Reading Total	Arith- metic	Total
5/57	5.6	5.9	5.7	5.8	6.0 Elem.
6/60	7.3	7.4	7.4	not adminis	stered Elem.
5/61	7.4	6.9	5.6	4.7	5.6 Ir.H.

Intelligence Testing (*W B-I **WAIS)

Date	Verbal	Performance	Full Scale
* 5/29/57	72	87	77
**12/ 8/60	83	77	79

Control was stabilized (left-sided); double vision and blurring disappeared. Her school roster

was centered around training in child care. No specific training in reading was pursued and regression to 5/57 level was evident. However, music lessons were much improved and nervous stability (home visits especially) were also markedly improved. Now living in foster home and employed, happily, in a child care program under the auspices of the Jewish Children's Bureau of Chicago.

Patient: Male, age 18-0 (Case No. 10)

Psychiatric Diagnosis: Chronic brain syndrome of undetermined origin associated with behavioral reaction.

Psychological Diagnosis: Expressive Intellectual Maturity: verbal, average (95 IQ); non-verbal, low average (89 IQ). Many ego inhibitions in a passive-dependent boy. Possibly of some organic involvement.

Neurological Impression: Suspect diffuse encephalopathy — obscure but probably congenital — possibility of endocrine disturbance.

Control Pattern

Handedness	Eye Dominance	Eye Control
right	left	left—slight at near point;
		grows at far point (noted
		as early as 1952)

Comment: His earliest eye examinations revealed twice the amount of astigmatism in the right eye than existed in the left but this had been left uncorrected and left eye control was thereby forced upon him. He had glasses, however, at the time of ophthalmological examination which were correct but he was not using them.

Treatment: Glasses for constant wear; clip over left eye when viewing television. Music lessons and practice in drumming were substituted for mechanical drawing.

Results

Achievement Testing (CAT)

Date	Vocabu- lary	Compre- hension	Reading Total	Arith- metic	Total
5/60	8.8	8.0	8.4	6.9	7.2 Jr.H.
5/61	9.8	7.9	8.9	6.8	7.3 Jr.H.

Intelligence Testing (W B-I)

Date	Verbal	Performance	Full Scale
9/59	95	89	92

Teachers reported him as calmer. Time and effort were devoted to his music, as this involved his life goals. (His roster did not include reading.) He was graduated in 6/61 with the purpose of becoming an auto mechanic with music as a hobby. He was personally delighted with his improved ability to face life situations with more confidence. He has performed at a professional level in his drumming.

Conclusions

- 1. Insofar as crossed control is concerned no observation has been revealed that in any way contraindicates the findings of Dr. and Mrs. Berner's original paper.
- 2. Clinical observation suggests that treatment of crossed control in the manner described leads to improved academic achievement and general progress and adjustment in residents of a special school.
- 3. Insofar as Devereux School is concerned it has been demonstrated that ample cooperation can be secured in a residential setting to carry through a program which will achieve for the child unilateral control and it's benefits.
 - 4. More definitive research is needed.

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Acute Glomerulonephritis in Infancy

Case Reports of Four Month and 18 Month Old Infants

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Acute glomerulonephritis is a relatively common disease, but is not common in the infant. In view of difficulties in collection of urine specimens, evaluation of urinary output and late appearance of edema in the infant, many cases of acute glomerulonephritis are, no doubt, undiagnosed. In the infant, many diseases may be excluded on the basis of age, but acute glomerulonephritis is not one of these.

Kunstadter⁴ reports one case of a 1,320 gram premature infant with the nephrotic syndrome who exhibited edema on the ninth day of life and expired after 71 days. Lapage⁵ reports one case of an 11 day old boy who developed clinical "hemorrhagic nephritis", but autopsy did not show glomerulonephritis. Conrad³ reports three cases of neonatal nephritis, of which one expired. No postmortem examination was obtained. Collins² reported one case of acute glomerulonephritis diagnosed at autopsy in a full-term infant, who expired after 90 hours of life.

Potter⁶ states "Glomerulonephritis is unknown in the newborn. Rarely, a few partially hylinized glomeruli can be found in the parenchyma of otherwise normal kidneys; they result from a malformation of the glomerular tuft and are unrelated to an infectious process".

Stowens⁷ reports "The youngest patient in whom we have seen true glomerulonephritis was 18 months of age and the disease is exceptionally rare in patients under two years of age".

Campbell¹ states "Acute glomerulonephritis is uncommon in infants under one year of age. In children, about 75 per cent of the cases occur between the ages of two and eight years".

The following are two cases that have been presented to our hospital within the last year, and represent the problem encountered in diagnosis of this disease in the infant.

Case 1:

D. P. was an 18 month old Spanish American female, who was presented in the emergency room by her mother, who was complaining of abnormal respirations. The child was admitted on 4-4-60 at 6:25 p.m. This child had a one day history of cough and a 12 hour history of rapid respiration. The mother described one episode of stiffness and hyperextension the evening of admission, which probably represented a convulsion or tetany. The child had received one injection of penicillin outside of the hospital and when she did not improve, was brought to the emergency room.

Physical examination showed the infant to be in acute respiratory distress. The skin was warm, moist, and had good turgor. The eyes were described as having a "fixed stare", but the pupils did react to light. Respirations were described as driving, rapid and deep, with some retraction. There were no rales or rhonchi noted. The apical rate was 180 with a questionable systolic murmur.

A lumbar puncture was done, yielding a total of six WBC's with two polys and four lymphocytes. There were a few non-crenated red blood cells. Chemistries were within normal limits. Complete blood count showed 18,750 white blood cells with 10 per cent stabs, 64 per cent segs, one per cent monos, and 25 per cent lymphs, five of which were described as being atypical.

A cut-down was done on the infant and Butler's Solution was started at 50 cc's per hour. The patient also received 4,000,000 units of aqueous penicillin, 500 mg. of Gantrisin, and 500 mg. of Chloromycetin, and was also given 30 mg. of Predinisone intravenously. Epinephrine was given intramuscularly on two separate occasions. The patient expired at 9:14 p.m. after a progressive depression of the respiration. She was laryngoscoped and no obstruction was found.

Postmortem was obtained and it was performed by Norman A. Pond, M.D., Pathologist. The lungs showed diffuse consolidation, which was of a gelatinous consistency. It was described as firm, indurated and reddish purple in color. There was no exudative process seen on gross examination. Grossly, the kidneys were not remarkable and both weighed 50 grams. Microscopic examination of the lungs showed "a diffuse picture of congestion and edema with the fluid being of a relatively high protein content. In many areas, there was a tendency to form a membrane-like structure around the air sacs, and some of this appeared to be almost fibroid in character. In addition, there was some moderate to mild secondary interstitial reaction with an increase in the number of mononuclear cells, as well as a few granulocytes. The bronchi showed no specific changes. The morphologic picture is similar to that seen in pneumonia of renal failure, rheumatic disease, or some of the other collagen-type diseases. The microscopic section of the kidneys revealed vascular congestion. Under low power, the glomeruli were large, swollen and relatively avascular. Under higher power, there were a few patent capillaries in some of the glomeruli, but for the most part, the glomeruli were swollen and relatively ischemic. A few neutrophils were seen. mostly within the circulation. There was proliferation of both endothelial and epithelial cell conponents of the glomeruli with considerable swelling of the endothelial cells. Tubules, except for a few hyaline casts, showed no intrinsic disease".

The cause of death was considered to be acute, diffuse, proliferative glomerulonephritis with a severe, diffuse, acute pulmonary congestion and edema, and developing cardiac failure.

Case 2:

C. L. was a four month old Anglo American female who was admitted on 4-13-59 at 1:15 a.m. History revealed anorexia and vomiting for a 48 hour period and gross tremor of all extremities for a seven hour period. There was no history of upper respiratory infection or other illnesses. The parent stated that the child cried considerably, and that the crying was usually followed by vomiting. The baby was a product of a full-term, uncomplicated pregnancy, and of a normal delivery. The birth weight was 5 lbs., 3 oz. The child was on an evaporated milk and water formula, 1:1, and she had been eating well and had been

gaining weight. There had been no previous hospitalizations. She had developed normally for her age.

Physical examination showed a chunky, pale, yet well-developed, four month old Anglo female. The skin was described as pale, but warm, with good turgor. There was no evidence of petechiae, ecchymosis or hemorrhage. Examination of the heart revealved a sinus tachycardia with a Grade II, low-pitched mid-systolic murmur, but the abdomen was soft. She appeared to be quite irritable throughout the examination, and she exhibited gross tremor of all extremities. The tremor disappeared when the child was held. Neurologic examination was otherwise negative.

At 2:30 a.m., the child was noted to have twitching of the mouth and left arm. Subdural taps were done which were negative. A spinal tap was also done and it was reported as containing one lymphocyte with a sugar of 106 mg. per cent, a protein of 14.0 mg. per cent, and a chloride of 757 mg. per cent. There were rare, noncrenated red bood cells noted. Urinalysis was obtained and showed albumin to be four plus and to have numerous red blood cells, as well as the presence of occasional granular casts. Electrolytes obtained that night showed a sodium of 137 mEq/1, a potassium of 4.4 mEq/1, chlorides 119.7 mEq/1, and a CO₂ content of 16 vol. per cent.

Hematocrit was reported as 37 per cent with a hemoglobin of 12.0 gm. per cent, and the white count was 15,000. The child was typed and crossmatched for 100 cc's of whole blood, which was given. The child was given 15 mg. of Phenobarbital intramuscularly on admission and a drip of sodium amytal in 500 cc's of 21/2 per cent dextrose and in half normal saline. At 7:43 a.m. on 4-13-59, the child had an apical rate of 180, and four cc's of calcium glucomate were given intravenously, slowly, and the rate dropped to 140. Electrolytes were reported as sodium 135 mEq/1, (potassium was not reported because of hemolysis) chlorides 113.7 mEq/1, CO2 content 18.6 vol. per cent, calcium 4.0 mEg/1, and phosphorus 8.8 mEq/1.

Normal values in this laboratory for calcium are 5.0 mEq/1 and phosphorus 2.0 mEq/1. It was felt that either the calcium or phosphorus was in error, as the phosphorus was elevated and the calcium was normal. Repeat chemistries on the

afternoon of 4-13-59 showed a sodium of 133 mEq/1, potassium of 6.85 mEq/1, chlorides of 104.3 mEq/1, CO₂ content of 8.8 vol. per cent, calcium of 1.8 mEq/1, and a phosphorus of 10.2 mEq/1. BUN was reported as 132.7 mg. per cent, and the creatinine as 1.25 mg. per cent. Electrocardiogram was reported as showing sinus tachycardia with an incomplete right bundle branch block, which was considered to be normal for her age. Skull films were also normal.

It was thought at the time that the child represented hypocalcemia, probably secondary to acute renal disease of undetermined etiology. Intravenous fluids were started on 4-13-59 and the child received a total of 400 cc's of fluid and 100 cc's of blood before she expired. The child was given calcium gluconate and sodium amytal intravenously, which controlled the tremor. She was typed and cross-matched for 50 cc's more of whole blood, as a repeat CBC showed a hematocrit of 26 per cent, hemoglobin of 7.8 gm. per cent, with a white count of 20,700. Platelets were reported as adequate. Differential showed one per cent baso, one per cent myelo, two per cent stabs, 17 per cent segs, 75 per cent lymph and four per cent mono. The patient expired at 3:00 p.m. on 4-14-59. Laboratory values that were returned subsequent to the child's death were a spinal fluid culture, which was negative, and two blood culture reports which showed alpha hemolytic streptococci.

An autopsy, performed by Norman A. Pond, M.D., was essentially negative on gross examination, except for some dependent congestion and local atelectasis of the lungs. The kidneys were reported as both weighing about 40 grams and there was no evidence of intrinsic disease. Microscopic examination of the lungs revealed some vascular congestion. There were some focal areas of secondary atelectasis and some interstitial reaction with infiltration, not only by mononuclear cells, but an occasional granulocyte. The changes within the lungs were considered to be terminal.

Microscopic examination of the kidneys revealed that the endothelial cells were somewhat swollen and the pattern of the glomerulus was not consistent, but was variable from glomerulus to glomerulus. The tubules showed dilatation, especially proximally. Marked congestion of the blood vessels was noted. Some of the tubular cells had lost their nuclei. Within the lumen of the tubules,

there were many granular coarse casts, as well as a few hyaline casts. The picture was one of acute nephritis, apparently glomerulonephritis. The sections of the kidneys were sent to the Armed Forces Institute of Pathology and the diagnosis concurrent with that of the pathologist was forthcoming.

In review, the autopsy indicated the basic cause of death to be a severe electrolyte disturbance and this was explained on the basis of acute glomerulonephritis.

Discussion

In the first case, the child expired before a workup could be completed, although autopsy revealed the disease process had been present several days. The second case is noteworthy as Streptococci were isolated on two separate occasions from the bloodstream, which was consistent with the autopsy findings. Case one presented a history of tachypnea, cough, and convulsive-like episodes. Case two presented a history of anorexia, vomiting, and tremor of all extremities. In both cases, the possibility of a toxic nephritis was considered, but no additional history could be obtained.

Older children and adults with acute glomerulonephritis, (presumably due to the nephrotic strains of the hemolytic streptococci) who complain of headache, hematuria, edema, (periorbital and generalized) and decreased urinary output, present no diagnostic problem. In the infant, this does not apply. If difficulty is not anticipated from the routine urine examination, the presenting symptoms are usually edema, tetany, irritableness, vomiting, or convulsions.

The edema picture is altered by the cellular physiology in the infant, and the urinary output is difficult to evaluate. Headache may be manifeated only by irritableness, although vomiting might be related to this. If decreased urinary output is recognized, the laboratory is of great value, although it may be confusing if hemoconcentration due to excessive vomiting or diarrhea is present.

Because of difficulties entailed in clinical diagnosis of acute glomerulonephritis, it is important not to exclude this disease on the basis of age alone. Unfortunately, it is usually diagnosed on postmortem examination.

Summary

A brief review of acute glomerulonephritis in infants is presented. Two case histories of patients, ages four and 18 months, were presented and their diagnoses were confirmed by autopsy findings as acute glomerulonephritis. Case two had an associated streptococcal septicemia. It is important not to exclude this disease because of age alone, particularly since the symptoms are non-specific.

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Parenteral Orphenadrine Citrate in Skeletal Muscle Spasm

MARION FRIEDMAN, M.D., Baltimore

Physicians and patients are constantly looking for drugs which will produce quicker and more complete relief of pain. When the medication accomplishes this by correcting the *cause* of the pain, it is particularly welcome. We report here on such a drug which has been used with exceptional success for the relief of pain accompanying spasm of skeletal muscles in 35 patients.

Orphenadrine hydrochloride (Disipal®, o-methyl analogue of diphenhydramine) has been used extensively in the treatment of Parkinson's syndrome since 1955¹-⁵. It has been shown to have antimuscarinic, antihistaminic and local anesthetic effects with marked predominance of the first activity⁶. Since that time its muscle relaxing effect has been reported in the treatment of headaches ¹-¹⁰, foot and leg cramps ¹¹ and various acute and chronic muscle involvements¹²-¹⁵.

Orphenadrine citrate (Norflex®)* has been shown to be an effective skeletal muscle relaxant, with a long lasting action, centrally mediated, and has the additional advantage of not exerting a generalized muscle weakening effect.

Experimental studies indicate that orphenadrine acts centrally on the medulla and the mesencephalon without demonstrable toxic side effects, even with ten times the human dosage. In experimental animals effective doses produce neither block at the myoneural junction nor muscular weakness, and does not affect crossed extensor reflexes or prevent strychnine convulsions as do the internuncial blocking agents (mephenesin and meprobamate). Orphenadrine has also been shown to increase tolerance to metrazol and to prevent nicotine-induced convulsions⁶.

Clinical Experiences

We report here on our experiences with the use of parenteral orphenadrine citrate in a series of 35 patients; 24 females, 11 males, ranging in age from 24 to 65 years. All complained of painful acute or chronic muscle spasm, associated with torticollis, whiplash injuries, or various types of strains or sprains. The orphenadrine citrate was administered intravenously by slow injection (3 to 5 minutes). Most patients received only one intravenous injection, but in one patient, a series of 14 injections was administered over a three month period.

^{*}Norflex®, Riker Laboratories, Inc., Northridge, California, available in ampules (2cc—60 mg of orphenadrine citrate) for either intravenous or intramuscular injection, and in tablets (100 mg) for oral administration.

Relief was usually reported by the patient before the infusion was completed, in several cases when as little as ½ of the dose had been given. In a few patients significant relief was not seen until about 15 to 30 minutes after the injection was completed. In a much smaller group maximum relief did not occur until several hours later.

Excellent relief (i.e., 75 per cent to 100 per cent relief immediately or within two hours) was seen in 57 per cent of the patients. Good relief (50 per cent to 75 per cent in same period) was seen in 23 per cent. Poor relief (25 per cent to 50 per cent in same period) was seen in 11 per cent, and failures (under 25 per cent in same period) were seen in 9 per cent. Included in the group considered failures are patients who were believed originally to be suffering from muscular conditions, but in whom later study revealed a different cause for their discomfort.

Intravenous injection of Norflex Injectable produced more rapid, complete, and permanent relief of skeletal muscle spasm than any drug used previously. This therapy also seems to offer promise as a therapeutic trial to differentiate muscular conditions from other organic conditions, notably arthritis. We have seen little improvement in patients when the problem has primarily been due to arthritis.

Side Actions

Serious reactions were not seen. The side effects which were seen were mild and transitory, and occurred primarily while we were using a two minute period to inject the medication, the frequency decreased when this time was lengthened to three to five minutes. Of the 35 patients, nine complained of side effects. Seven noted mild dizziness, two a slightly bitter taste in the mouth, and one each noted numbness of both sides of the face, thickening of the speech, blurring of vision, mild nausea and sweating.

The complaint of numbness of the face lasted about a half hour, the thickening of the speech lasted less than one minute. The bitter taste was transitory in both cases. Blurring of vision persisted for less than two minutes. Dizziness did not persist for more than ten minutes.

It was our first belief that the dizziness might have been produced by relaxation of the musculature about the blood vessels with a consequent sudden fall in the blood pressure. Blood pressure determinations, prior to and after injection failed to substantiate this theory whether the patient sustained dizziness or not. In fact, in a few patients, the tension after injection was mildly higher than prior to treatment.

The only patient who reacted with marked sensitivity was a 45 year old male who complained of nausea, dizziness, sweating and became pale with the administration of only ¼ cc. of the medication in 30 to 45 seconds. The injection was stopped immediately and the patient placed in the supine position. Within 10 minutes all symptoms had disappeared and he was able to walk about as if nothing had occurred. It is also of interest that this patient noted about 50 per cent relief of his symptoms of low back pain (by his own estimate) immediately even though only ⅙ of the usual total dose had been given.

Properly administered the preparation appears safe and without contra-indication.

Typical Case Reports

1. Typical case:

M. B., a 41 year old white female, awoke with a "stiff neck" on the day prior to being seen. Examination revealed tenderness and spasm involving the right trapezius and sternomastoid muscles. Two cc. of orphenadrine citrate was administered slowly intravenously. Before one cc. had been given she stated that there was marked improvement and by the time the full dose had been administered she felt that at least 90 per cent of the discomfort had disappeared. Objectively the patient was at this time turning her head through a normal range of motion. In one to two hours her trouble had completely disappeared and she required no further therapy. There were no side effects.

2. An unsually good result:

J. N., a 52 year old white male had had pain and stiffness in the left quadriceps group of muscles for three weeks without significant relief from various home remedies. He was given 2 cc. of orphenadrine citrate intravenously very slowly with complete relief before the injection was completed. His symptoms did not return and there were no side effects.

3. Repeated injections:

L. R., a 49 year old white female, was seen

because of a "frozen shoulder" resulting from bursitis of over a year, and with much pain in the region of the deltoid and trapezius muscles. Hospitalization was advised to have the adhesions broken up manually under anesthesia, but was refused. She was first given analgesics and steroids for several weeks without significant benefit. An attempt to relieve the muscle pain with intravenous injection of orphenadrine citrate was made with some mildly encouraging results. Because of this the patient was given a total of 14 injections over a period of two months. At the same time analgesics and mild exercises which stretched the muscles and adhesions were used. After this period there was an estimated 85 per cent improvement in function of this joint and practically no complaints of discomfort. None of the injections produced any side effects. This is not considered the ideal manner in which to treat such a patient but is offered to indicate patient acceptance of the drug and to suggest that it may be of benefit in areas where the treatment of choice can not be undertaken for any reason.

- 4. Treatment failure because of mistaken diagnoses:
- G. F., a 47 year old white female was seen at her home where she was in such excruciating pain of one day duration that she was unable to get out of bed even to go to the bathroom.

She remained moderately comfortable if she did not move but even deep breathing or a shallow cough caused much pain in her lower back. Examination was not completely satisfactory because of the patient's inability to cooperate, but it appeared that there was muscle involvement over the lower back generally. The patient was given two cc. of orphenadrine citrate slowly intravenously with no improvement. This was followed by oral demerol in doses of 100 mgm. every four hours without relief.

The patient was hospitalized in the belief that she might be suffering from a ruptured intervertebral disc. X-rays revealed marked arthritic changes in the lower lumber, lumbo-sacral and sacroiliac joints. An intensive course of steroids with initially relatively high dosage resulted in prompt improvement in the patient. Since this time I have used the injection of orphenadrine citrate as a diagnostic tool to differentiate questionable

skeletal muscular complaints from those involving joints or other structures.

When the injection of the medication failed to result in even mild to moderate improvement immediately, the diagnosis of a muscular condition seemed open to question. Subsequent X-ray and other studies usually revealed a non-muscular etiology.

- 5. Typically poor permanent relief in the muscle spasm of functional disease:
- M. K., a 27 year old white female suffered severe tension headache for several days because of the anticipated loss of her foster child who was being reclaimed by her natural mother. An injection of orphenadrine citrate resulted in immediate relief of symptoms but the next day the difficulty had returned. A second attempt with the same therapy was no more successful.

Summary

A new parenteral skeletal muscle relaxant has been used with good success for the relief of painful skeletal muscle spasm. Good to excellent results were seen in 80 per cent, fair results in 11 per cent. Serious side actions were not seen. Mild and transitory side action were seen in 9 of 35 patients (25 per cent). The data suggest that parenteral orphenadrine citrate may be a useful aid in differentiating between skeletal muscle and other types of pain, since most of the patients who responded poorly were found, on later study, to present a different cause for their discomfort.

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Clinical Pathological Conference

R. E. Thomason General Hospital, El Paso

Case No. 1830

October 18, 1962

Editor: F. P. Bornstein, M.D.

Presentation of Case: Victor M. Blanco, M.D.

Clinical History

Chief complaint: Asthmatic attacks.

History

This 84 year old Mexican woman was admitted to the hospital through the emergency room, complaining about shortness of breath. She was cyanotic, wheezing in both lungs, and semi stuporous. She was too stuporous to give a direct history. It was given by a relative. Four years previous to admission she started to cough. The cough was mostly at night, more severe in winter than in summer. In 1961 a mass was noted on the left side of the neck which according to friends appeared quite suddenly. The day prior to admission the patient started to have bouts of suffocation and shortness of air. No other significant history was elicited.

Physical Examination

Physical examination reveals a seriously ill woman with much breathing discomfort. Temperature is 98, pulse varying between 100 and 130, respiration 32, blood pressure 90/60. The head is not remarkable. Examination of the neck shows a big mass, measurements not given, in the lower anterior portion of the right neck pushing the esophagus over to the left. The thorax is externally normal. The lungs expand well. There are rales in both pulmonary fields and some wheezing in the right lower lobe. Heart: The second pulmonary sound is somewhat accentuated. The apex is palpated in the anterior axillary line. Vague pain on palpation in entire abdomen especially in right upper quadrant. No masses, no rigidity. External genitals examination was normal. Back normal. Neurological examination: Semiconscious, reflexes present except in legs. Some tremor of upper extremities.

Laboratory Findings

Urine: concentration 1.020 to 1.016. Albumin +1. Microscopic: few white cells and bacteria. White count: 9,000. Differential: Neutrophiles, 65. Bands, 9. Juveniles, 1. Lymphocytes, 19. Monocytes, 7. Hemoglobin, 14 grams. Chemistry: Glucose, 137. NPN, 41.2. PBI & Kidney: see later. X-rays: 7/24/62. Impression: Superior mediastinal mass producing deviation of the trachea. Thickening and retraction of the minor inter-lobar fissure. Degenerative change and spondylolisthesis of lower lumbar vertebrae. Impression: 7/25/62: Superior, middle mediastinal mass, displacing esophagus anterior and to the left. If thyroid is suspected, I would suggest I-131 uptake and scan. Questionable right upper quadrant calcification as above. If I-131 uptake and scan is contemplated, be sure to do it before gallbladder examination.

The patient was treated in the hospital with alevaire and aminophyline. She continued to improve and was discharged on the 25th of August in an improved condition having been seen in the meantime at Providence Hospital for scanning.

Iodine uptake: 8/7/62, Dr. G. A. Stokdyk; 5.8 per cent. Conclusion: These values represent below normal thyroid iodine 131 uptake. Iodine uptake: 8/20/62, 8.4 per cent. Conclusion: The uptake reveals hypothyroid values. The scanning reveals decreased activity in the right upper and left lower lobe. Impression: Likely "cold nodules" of both lobes. Subnormal iodine uptake, Dr. Stokdyk.

She returned to the clinic on September 17 acutely ill and gasping for breath. The physician on duty sent her to the hospital with the request to put her into the surgical service for immediate

tracheotomy; however, she was transferred to the medical service and put in cardiac position. This produced temporary improvement.

At the time of second admission her temperature was 100, her pulse 120, respiration 20, blood pressure 160/90. Urine was essentially normal. WBC, 7,400 with a normal differential. She was treated with alevaire and aminophyline. On September 26 she again started choking and a tracheotomy was attempted. Upon incision a considerable amount of dark red fluid escaped from the point of incision. The patient went into near shock and was intubated by the anesthetist, which improved her condition considerably. The next day she again started to choke and go into shock and a tracheotomy was performed and tube was placed; however, she died a few hours after this was done.

Dr. Victor M. Blanco

I shall not give a detailed discussion of the physical examination, except for the mass in the neck. The size of the mass was not given in the protocol; it was once described as being on the right and once on the left. I believe the mass was on the right side, because it was pushing the trachea and esophagus to the left. Prior to her first admission on July 21, the patient coughed up blood. The patient was admitted because of respiratory distress, probably due to tracheal compression by the mass.

The patient was not anemic. She may have had hemoconcentration although the specific gravity of the urine does not show it. The white count was not elevated and not remarkable. The iodine uptake revealed hypothyroidism. The PBI was normal, 7.1. The total uptake was 4.4. The scanning revealed decreased activity in the right upper and left lower pole.

Dr. G. A. Stokdyk

The scanning was done on a large field below the sternal notch. The little V (figure 1) near the bottom represents the suprasternal notch. One can see that the scanning lines are closed together in the right lower and left upper glands. We are dealing with a hypothyroid uptake, so one does not get a clear delineation but one can say that there are areas of non-functioning thyroid. This implies non-functioning tissue, primar-

ily in the upper region of the right thyroid lobe.

Dr. Blanco

Therefore we must consider a mass arising in the neck primarily, such as a thyroglossal cyst, a bronchogenic cyst, a parotid gland tumor, or perhaps hygromas, neurilemnomas or teratomas primarily of the neck or mediastinum. Those mediastinal tumors which arise posteriorly mainly along the paravertebral gutter are neurogenic in origin and are rarely found elsewhere in the chest. Masses beneath the sternum are usually fibrotic or thymic in origin. They may occasionally be teratomatous and rarely parathyroid. I didn't mention para thyroid tumors especially, because there was not much evidence of calcification.

Most tumor masses in the center of the chest are of gradual origin. The most common type is the lymphoma and sarcoid. First, I excluded aneurysin of the arch of the aorta since this mass was not pulsating according to the fluoroscopy examination, and when incised the fluid was dark red instead of bright red. Therefore, I didn't consider this diagnosis any further.

Dermoid cysts and teratomas also appear in the mediastinum and in the neck. The dermoid cysts usually appear in the submental triangle. The teratomatous tumors usually appear in the lateral aspect of the neck. These lesions also contain hair and sebaceous material and not blood, as had been described in the protocol. These appear exclusively in the anterior superior mediastinum and grow downward, not upward, and occupy the space next to the trachea and esophagus, either to the left or to the right.

Thymic tumors show minimal symptoms except for pressure. Patients sometimes have symptoms of myasthenia gravis. Bronchogenic or enteric cysts are usually found more or less deeply located in the mediastinum or paraesophageal and may also lie anteriorly. They are usually connected with the tracheabronchial tree and may cause erosion. This may explain the hemoptysis which the patient had back in July. Cystic hygromas may appear in any part of the neck or mediastinum but are usually discovered shortly after birth and contain clear fluid.

I also considered a metastatic lesion, simply because of the calcification present in the right

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upper quadrant. I have not seen the x-rays, but I think there exists here a calculus gallbladder. But the type of calcification also may represent evidence of primary carcinoma of the liver which has metastasized to the right supraclavicular lymph nodes. These lymph nodes usually do not grow the size of the mass mentioned. A substernal enlarged thyroid may produce the findings described in this patient or a cystic adenoma of the right lobe of the thyroid or a recent hemorrhage. These lesions could have grown or extended posteriorly to the esophagus and downward.

The history of this patient is suggestive of a cyst of the right lobe of the thyroid because it appeared quite suddenly. Incision into the substernal or a large cystic mass could have caused the escape of a considerable amount of dark red fluid. The hemorrhages into such cysts usually cause sudden enlargement. On the other hand, the escape of the dark red fluid in the region could be due to the incision of a smaller vein in the neck. So, my diagnosis, or my conclusion, is that this is either a substernal thyroid with enlargement to the right posteriorly or a large cystic adenoma of the right lobe of the thyroid with hemorrhage.

Dr. F. P. Bornstein

Dr. Stokdyk, can you correlate the scintogram with the x-rays and come to a more definite diagnosis?

Dr. Stokdyk

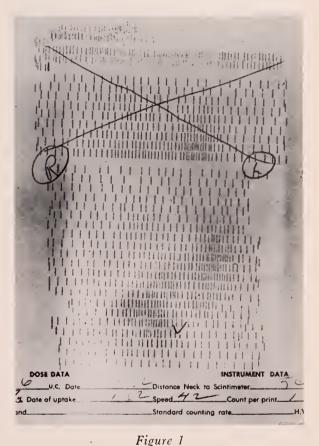
I would say that the x-ray mass and the outline of the scintograms and the two dimensional projections more or less correlate each other.

Dr. E. S. Crossett

This patient was an 84 year old woman with a mass in the vicinity of the right lobe of the thyroid. I do not know how accurate the scanning procedure is, but I would think it would be quite possible to have absence of iodine in this right lobe of the thyroid and a tumor adjacent to the thyroid. One may wonder whether this was a thyroid lesion, mainly because the tumor was located behind the pharynx and behind the esophagus. This is quite an unusual location for a substernal thyroid. It brings up the question, may the tumor be located in the retro-pharyngeal area?

Dr. George W. Iwen

I would like to discuss a tracheotomy, which was tried on one day and completed the next day. A tracheotomy can be lifesaving but also can be a very deadly type of procedure if the tracheotomy becomes obstructed. The results are obvious. Obstruction may result from retained secretions, dried blood, dried out mucous or from a misplaced tracheotomy tube. Other late complications are stricture in a higher place or erosion of the



Aug. 25, 1962. Iodine uptake study.

tracheotomy tube through the tracheal wall with breakthrough into some of the major vessels. I don't want to produce fright or fear of the tracheotomy but knowledge of the complications may prevent deaths.

Dr. W. Hunter Vaughan

Looking at the skeleton on the x-ray and although she is 84 years old, I wonder about the possibility of a para-thyroid tumor.

Clinical Diagnosis: Cyst of neck.



Figure 2
Neck organs, posterior view.

Dr. Blanco's diagnosis: Hemorrhagic cyst of thyroid, right side.

Pathological Discussion: Dr. F. P. Bornstein

On autopsy, I found an emaciated elderly woman. The mass was on the right side. It measured 15 cm. in greatest diameter. After removing the organs (figure 2), I could see that this large mass, which was obviously of thyroid origin, was compressing the trachea to a very severe degree. On sectioning the mass was cystic and contained a large amount of fresh blood.

On microscopic examination it became quite clear that this mass represented a benign thyroid adenoma with cystic degeneration and hemorrhage. I feel that death is directly attributable to the tracheal compression of the mass.

Pathological Diagnosis: Large cyst adenoma of right thyroid with large hemorrhagic cyst and compression of trachea.

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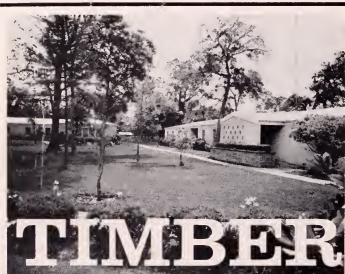
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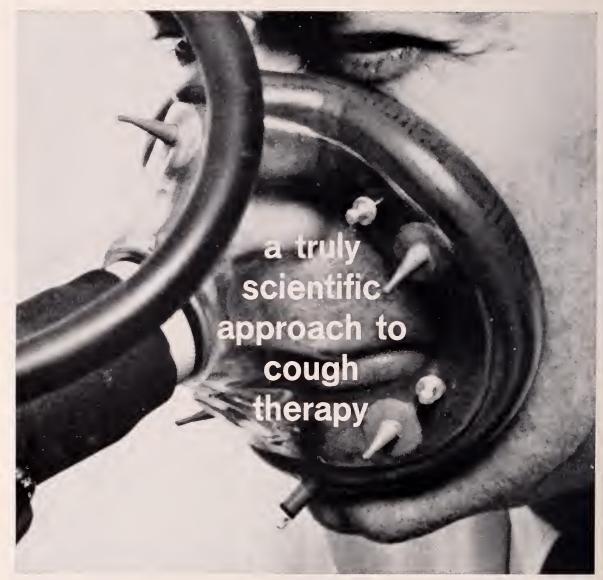
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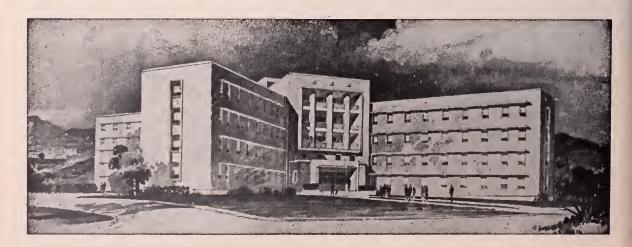
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B

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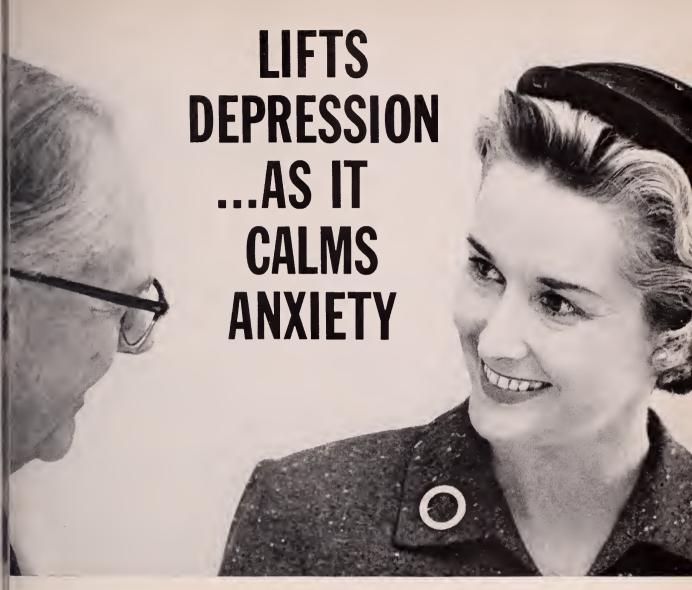
Precautions: It is essential that adequate blood studies be made during treatment with the drug. While blood studies may detect early peripheral blood changes, such as leukopenia or granulocytopenia, before they become irreversible, such studies cannot be relied upon to detect bone marrow depression prior to development of aplastic anemia.

References: (1) Thacher, H. C., & Fishman, L. J. Maine M. A. 52:84, 1961. (2) Hopkins, E. W.: Postgrad. Med. 29:451, 1961. (3) Hall, W. H.; M. Clin, North America 43:191, 1959. (4) Krugman, S.; Pediat, Clin, North America 8:1199, 1961. (5) Ede, S.;



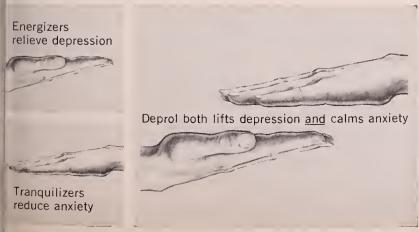
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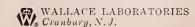
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*Maxwell, M.H., et al.: JAMA 170:917 (June 20) 1959.

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N. M. Medical Society To Meet in Albuquerque April 24-26

The New Mexico Medical Society will honor the University of California at Los Angeles Medical School at its 81st annual meeting in Albuquerque, April 24-26, 1963.

Members of the U.C.L.A. staff who will present the clinical program are Dr. William S. Adams, Professor of Medicine; Dr. Wiley F. Barker. Associate Professor of Surgery; Dr. Charles O. Bechtol, Professor of Orthopaedics; Dr. Aaron F. Rasmussen, Jr., Assistant Dean of the School of Medicine: Dr. Daniel G. Morton, Professor and Chairman of the Department of Obstetrics and Gynecology; Dr. Stanley Wright, Professor of Pediatrics; and guest member of the faculty, Dr. Benjamin H. Balser, Assistant Professor of Psychiatry at Columbia University and Director of Psychiatric Research and Training, St. Luke's Hospital, New York.

Dr. Edward R. Annis, President Elect of the American Medical Association, and Dr. Balser will speak at a public meeting the evening of April 24 in Johnsons Gymnasium at the University of New Mexico. Dr. Annis will discuss the Medicare issue and Dr. Balser will talk on the "Problems of Adolescence".

There will be an all-day session Saturday, April 27, sponsored by the Committee on Maternal and Perinatal Mortality of the New Mexico Medical Society in cooperation with the Cerebral Palsy Association.

Headquarters for the convention will be the Western Skies Hotel.

The House of Delegates of the Society will convene on Tuesday afternoon, April 23, and Wednesday morning, April 24.

New members will attend an orientation course Thursday morning. April 25, at the Four Hills Country Club.

Officers of the Society are Dr. R. C. Derbyshire, Santa Fe, President; Dr. C. Pardue Bunch, Artesia, President-Elect; Dr. Thomas L. Carr, Albuquerque, Vice-President; and Dr. Hugh B. Woodward, Albuquerque, Secretary-Treasurer.

PROGRAM

Monday, April 22 Territorial Room

1:30 pm Council Meeting 6:30 pm Council Dinner

> Tuesday, April 23 La Mina Room

2:00 pm First Session, House of Delegates 3:30 pm Reference Committee Meeting

Wednesday, April 24 Sandia Room

8:30 am Second Session, House of Delegates

1:30 pm Opening Ceremonies

Presiding: Dr. W. E. Badger, Hobbs Immediate Past President New Mexico Medical Society Welcome

Archie Westfall, Albuquerque Chairman, City Commission Dr. William F. Blank, Albuquerque, President, Bernalillo County Medical Association

Presidential Address Dr. R. C. Derbyshire

First Clinical Program
Presiding: Dr. R. C. Derbyshire

2:00 pm The Role of Viruses in the Etiology of Cancer

Dr. Aaron F. Rasmussen, Jr.

2:45 pm Current Concepts in the Management of Disseminated Malignancy Dr. William S. Adams Dr. Daniel G. Morton

3:30 pm Intermission

3:45 pm Panel Discussion: Future Techniques in Cancer Therapy Moderator: Dr. R. C. Derbyshire

Panelists: Dr. William S. Adams Dr. Wiley F. Barker Dr. Daniel G. Morton

8:00 pm Public Meeting

Johnson Gymnasium, University of New Mexico Medicare

Dr. Edward R. Annis, Miami, President-Elect, American Medical Association Adolescence—An Emotional Crossroad Dr. Benjamin H. Balser

Thursday, April 25

Four Hills Country Club
Orientation Course for New Members
Presiding: Dr. Thomas L. Carr,
Chairman, Orientation
Course Committee

9:00 am Welcome Dr. R. C. Derbyshire

9:05 am Insurance Programs for Our Members
Dr. Omar Legant, Albuquerque
Speaker, House of Delegates
New Mexico Medical Society

9:25 am Licensure and Laws Pertaining to Narcotics John L. Kelly, Jr., Albuquerque Special Agent on Narcotics

9:45 am Court Proceedings

Judge David Carmody, Santa Fe

Justice of Supreme Court of

New Mexico

10:15 am Coffee

10:30 am Panel Discussion: Medicine Beyond the Stethoscope Moderator: Dr. Thomas L. Carr

10:30 am Ethics Dr. William E. Badger 10:50 am Malpractice

Dr. John K. Torrens, Albuquerque Member, American Medical Association Medical-Legal Committee

11:10 am Grievance Committee

Dr. Randolph Seligman,
Albuquerque, Past Chairman,
Bernalillo County Grievance
Committee

11:30 am Board of Medical Examiners

Dr. John F. Conway, Clovis

President, New Mexico Board
of Medical Examiners

11:50 am Question and Answer Period

12:15 pm Luncheon

Speaker: Bernard P. Harrison, LLB, Chicago, Director, Legal Department, American Medical Association

Second Clinical Program
Sandia Room
Presiding: Dr. C. Pardue Bunch

2:00 pm Diabetes in Pregnancy
Dr. Williams S. Adams
Dr. Daniel G. Morton

2:45 pm Selected Maternal Conditions Affecting the Fetus Dr. Stanley Wright

3:30 pm Intermission

3:45 pm Panel Discussion: Complications of Pregnancy
Moderator: Dr. Harris W. Barber,
Santa Fe
Panelists: Dr. Stanley Wright
Dr. Daniel G. Morton
Dr. William S. Adams

7:00 pm Cocktails

Four Hills Country Club

8:00 pm Dinner-Dance
Four Hills Country Club
Presentation of Past President's Pin
by Dr. Badger

Friday, April 26 Third Clinical Program

Presiding: Dr. Thomas L. Carr

9:00 am Viral Infections of the Respiratory
Tract

Dr. Aaron F. Rasmussen, Jr.

9:45 am Renovascular Hypertension Dr. Wiley F. Barker

10:30 am Intermission

10:45 am Panel Discussion: Postoperative Management of the Patient with Underlying Pulmonary or Renal Disease
Moderator: Dr. Solomon Papper,
Albuquerque, Professor and Chairman of the Department of Medicine of the University of New Mexico
Medical School
Panelists: Dr. Wiley F. Barker
Dr. Aaron F. Rasmussen, Jr.

Fourth Clinical Program

Presiding: Dr. Hugh B. Woodward

1:45 pm Address

Dr. Reginald H. Fitz, Albuquerque, Dean of the Medical School, University of New Mexico

2:15 pm Mechanisms of Recalcitrant Shock Dr. Wiley F. Barker

3:00 pm The Painful Shoulder Dr. Charles O. Bechtol 3:45 pm Intermission

4:00 pm Panel Discussion: Trauma from Birth to Death

Moderator: Dr. Albert Simms, II,
Albuquerque, Chairman,
Medical-Legal Committee, New Mexico
Medical Society

Panelists: Dr. Wiley F. Barker
Dr. Charles O. Bechtol
Dr. Daniel G. Morton

Allied Specia'ty Meetings La Mina Room

Friday, April 26

6:00 pm New Mexico Chapter, American College of Chest Physicians

Saturday, April 27

Sponsored by Maternal and Perinatal Mortality Committee of the New Mexico Medical Society and the Cerebral Palsy Association

9:00 am

to

12 noon Clinical Program

12 noon Luncheon Blue Room

2:00 pm to

5:00 pm Clinical Program

AAGP Meeting To Be Held March 17

The El Paso Chapter of the American Academy of General Practice will present a Sunday seminar in the Hilton Inn on March 17, 1963.

Subject will be "Surgical Emergencies with the Emphasis on Orthopaedic and G.U. Problems." Speakers will be from the Scott and White Clinic at Temple, Texas. The one-day course is approved for six hours of Category 1 credit. For information on reservations and other details contact Dr. B. B. Kern, Suite 9A, El Paso National Bank Bldg., El Paso, Texas.



Dr. Kleban

Dr. Kleban Elected President of Texas District I Medical Association

Dr. M. Nathan Kleban of El Paso was elected president of District I of the Texas Medical Association at its annual meeting in Pecos, Saturday, February 2. 1963. The retiring president is Dr. Gordon Black of El Paso. El Paso was selected as site for the 1964 meeting.

Other officers are Dr. George Hoffman, Fort Stockton, president-elect; and Dr. William R. Gaddis, El Paso, secretary-treasurer, who was reelected; Dr. Charles Oswalt, Fort Stockton, councilor; and Dr. Russell Holt, El Paso, vice-councilor. Drs. Oswalt and Holt are continuing unexpired terms.

Mrs. John Martin, El Paso, was elected councilwoman for District I to succeed Mrs. Jesson Stowe, also of El Paso. Speakers at the auxiliary meeting included Mrs. R. C. L. Robertson, Houston, president of the Texas Medical Association Auxiliary; Mrs. Robert L. Carr, Lubbock, western regional vice-president of the Texas Medical Auxiliary: and Mrs. H. D. Hatfield, El Paso, past president of the Texas Auxiliary.

Principal speaker was Dr. George W. Waldron, Houston, president of the Texas Medical Association. Dr. Arnold J. Rudolph, Houston, department of pediatrics at Baylor University College of Medicine, replaced Dr. L. Leighton Hill also of Houston, who was unable to appear.

Born in San Antonio

Born in San Antonio, Dr. Kleban attended San Antonio schools, took night and part time attendance and extension courses in San Antonio Junior College, St. Mary's University and the University of Texas, and received his M.D. degree from the University of Texas Southwestern Medical School in Dallas in 1949. Between 1946 and 1947 he was an instructor in the Departments of Physiology and Pharmacology at Southwestern. He took his internship in the Osler Medicine Service at The Johns Hopkins Hospital and then took a three-year residency in medicine at Parkland Hospital of Dallas between 1950 and 1953. He then took a residency in neuropsychiatry at the Timberlawn Sanitarium in Dallas.

He began the private practice of internal medicine in El Paso in February, 1955. He is certified by the American Board of Internal Medicine and is an associate of the American College of Physicians. He is a member of the Southern Medical Association. Southwestern Medical Association, the Texas Society of Internal Medicine, American

Society of Internal Medicine, the Texas Academy of Internal Medicine, the Texas Heart Association, the American Heart Association, the National Rehabilitation Association and the American Association for the Advancement of Science.

Chief of Staff

He is chief of staff of the R. E. Thomason General Hospital in El Paso and vice-chief of staff at Providence Memorial Hospital in El Paso. He was chief of medicine service at Thomason Hospital between 1956 and 1958, a position he also held in 1960, 1961 and 1962.

He is chairman of the medical advisory board of the Planned Parenthood Center of El Paso, a director of the Cielo Vista Optimist Club and a member of B'nai B'rith.

He is a member of Phi Delta Epsilon Medical Fraternity, the Alpha Omega Alpha Honor Medical Society and the Alpha Pi Alpha Honorary Fraternity of Southwestern Medical College.

He resides in El Paso at 8205 Catalpa Lane with his wife, the former Fav Sitton of Pvote, Texas, and their children, Mary Adelia, six, and John Andrew, five.

Coming Meetings

El Paso Chapter. American Academy of General Practice. Seminar on "Surgical Emergencies with the Emphasis on Orthopaedic and G.U. Problems," Hilton Inn. El Paso. March 17, 1963.

Second Annual New Mexico Psychiatric Seminar, Albuquerque, March 22 & 23, 1963.

New Mexico Dental Symposium, sponsored by the Bernalillo County Unit of the American Cancer Society and the New Mexico Dental Association, Western Skies Hotel. Albuquerque. March 22 and 23, 1963.

American College of Allergists, Graduate Instructional Course and 19th Annual Congress, Americana of New York, New York City, March 24-29, 1963.

Oklahoma Tuberculosis Association, "Fourth Oklahom Colloque on Advances in Medicine: Pulmonary Insufficiency," Oklahoma City. Mar. 28-30, 1963.

National Association of Recreational Therapists, Annual Conference, Oklahoma Center for Continuing Education, Norman, Okla., April 8-12.

New Mexico Medical Society, 81st Annual Meeting. Western Skies Hotel. Albuquerque, April 24-26, 1963.

United States-Mexico Border Public Health Association, Annual Meeting, Nogales, Ariz., April 29-May 2. 1963.

New Mexico Chapter, AAGP, Ruidoso Summer Clinic. Ruidoso, N. M., July 15-18, 1963.

American Academy of Physical Medicine and Rehabilitation, Annual Meeting, Sheraton-Dallas Hotel, Dallas, Aug. 26, 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southwestern Medical Association. 45th Annual Meeting, Holiday Inn. El Paso, Nov. 14-16, 1963.

Writing Awards Contest

The second annual \$500 Writing Awards Contest for the best original scientific articles published in Southwestern Medicine is governed by the following rules:

Awards will be made in two classifications: Regional and National. All physicians who practice in West Texas. Arizona. New Mexico, Nevada or Northern Mexico | States of Sonora and Chihuahuai are eligible to compete for the Regional Awards. Physicians in the United States outside the Regional Area may compete for the National Awards.

Original scientific articles published in Southwestern Medicine between Sept. 1, 1962, and Sept. 1, 1963, will be eligible for the 1962-1963 contest.

Awards will be made in the following amounts for original scientific articles written by physicians in the Regional Area: \$100 for the best paper; \$75 for the second best paper; and \$50 for the third best paper.

Awards for original scientific articles in the National classification will be made in the following amounts: $\$1(\aleph)$ for the best

paper; \$75 for the second best paper: and \$50 for the third best

paper.

An additional \$50 will be set aside annually to establish a fund for a special classification to be known as the Intern and Resident Writing Awards, Original scientific articles submitted by resident physicians and interns of the Regional Area will be eligible for special awards to be announced at a future date.

Contributions must be written in English. They must be typed. double spaced, on one side of the paper only, All papers should be submitted to Lester C. Feener. M.D., Editor, 310 North Stanton Street, El Paso, Texas.

As with all official medical journals, only those papers found acceptable by the Board of Editors of the journal will be published.

The Writing Awards have been established by Paul I. Murphy. President of Medical Research Association of New York and Boston to encourage improvement in medical journal writing. Judging will be done by the educational committee of the American Medical Writers' Association.

ORIGINAL ARTICLES

The Role of Pericardial Biopsy in Establishing the Etiology of Pericarditis*

JOHN F. CURRIN, M.D., F.A.C.P., F.C.C.P., Flagstaff, Ariz.

Pericarditis may be loosely defined as an inflammation of the pericardium. It is not an uncommon condition. A survey of 8,912 necropsies at the Mayo Clinic revealed pericarditis of all etiologies to occur in 4.2 per cent of the cases autopsied.

There are numerous causes of pericarditis. Wood mentions tuberculosis, pyogenic infection, allergy, trauma, uremia; those cases secondary to myocardial infarction, malignant growth, hemapericardium from various causes, hydropericardium from congestive failure and myxedema.

Establishing the etiology of an individual case of pericarditis may be a difficult problem. The need to establish the cause of the episode of pericarditis becomes important. At one time, etiological diagnosis was of little more than academic interest. However, the appearance of potent antituberculous drugs, steroids and cancer chemotherapy have made it mandatory to establish the etiology of pericarditis, if possible. There is, also, increasing evidence that chronic constrictive pericarditis may be the end result of "idiopathic pericarditis" as well as tuberculous pericarditis. Therefore, prompt treatment of pericarditis with proper medication is the order of the day if this complication is going to be avoided.

"Idiopathic pericarditis" is becoming less "idiopathic" with the passage of time. This disease was first brought to prominence by the report of Barnes and Burchell in 1942. They pointed out that this entity can be confused with coronary occlusion. The authors noted that this type of acute pericarditis commonly followed upper respiratory illnesses. A whole host of other illnesses have been

shown to precede the onset of pericarditis. Most are viral in nature.

Gillett reported in 1959 on an epidemic of pleuradynia at the United States Naval Air Station, Jacksonville, Florida. There occurred eight cases of "idiopathic pericarditis", simultaneously. Coxsackie B, type 5, was recovered from the stools of these eight patients and antibodies to this virus were demonstrated in their sera.

Weinstein reported a similar case in 1957, due to Coxsackie B, type 5. Kagan and Beinkopf reported the case of a ten year old girl in whom Coxsackie B, type 3, was reported from stool and pericardial fluid. Movett described recovering Coxsackie B, type 3 and Coxsackie A, type I (one) from the stool and serum of a patient with pericarditis.

However, there are few of us in private practice who are able to get virus studies done with enough rapidity to aid us in determining the etiology of any particular case of acute pericarditis. Therefore, the clinician has been forced to depend on history, skin tests, smears and cultures from pericardial fluid. The results of these tests are usually inconclusive and add little to establishing the underlying cause.

Let me point out that the presence of hemorrhagic fluid in the pericardial cavity does not mean tuberculosis or tumor. Williams, Beckwith and Wood reviewed the literature concerning the presence of bloody pericardial fluid, obtained by aspiration in cases of idiopathic pericarditis. Of 22 cases reported in the literature, 14 had bloody pericardial fluid. Mathan and Dathe¹⁵ reported four or five cases of "idiopathic pericarditis", aspirated by them, had hemorrhagic pericardial fluid.

^{*}Presented at Regional Meeting of the American College of Physicians, Scottsdale, Arizona,

Biopsy of the pericardium has been used with increasing frequency in recent years. The first case of pericardial biopsy was performed by Dr. Ada on December 23, 1941. He biopsied the pericardium of an opera singer who had recurrent pericardial effusion and cardiac tamponade. Biopsy revealed pericarditis with cholesterol placques and foreign body giant cells. Dr. Ada left a window in the pericardium. There was no further accumulation of pericardial fluid. This case was reported by Dr. Ada in 1950. The opera singer had returned to work, without difficulty, some years before.

This interesting syndrome of cholesterol pericarditis occurs with increasing frequency in the literature. It was first reported by Alexander in 1919. It is often associated with myxedema. Voldet, in 1950, felt it was a result of hemapericardium with degeneration of old blood. Creech felt this to be the usual cause of cholesterol pericarditis in his recent review of this subject.

Williams and Soutter reported on a case of idiopathic pericarditis, biopsied by them in 1954. They, also, cut a pleuro-pericardial window to prevent recurrent pericardial effusion. Proudfit and Effler have described 16 patients biopsied by them. Tuberculosis was the cause in one patient, non-specific pericarditis in 12 patients, radiation fibrosis in one patient, thymoma in one, chylopericardium (cholesterol pericarditis?) in the remaining patient.

Barr, from the V.A. Hospital in Palo Alto, Calif., reported on one patient in whom all usual diagnostic procedures failed to establish the etiology of his pericarditis. Biopsy proved the patient to have tuberculous pericarditis. Barr cited a report of Katz and McCormick, who biopsied 12 patients without any morbidity.

Weinberg, Fell, and Lynfield have described their experiences with five patients whom they biopsied to determine the cause of their pericarditis. One patient proved to have lupus, one, a pericardium filled with old blood, one tuberculosis, and one patient with cholesterol pericarditis. They biopsied the myocardium of one patient who proved to have arteriosclerotic heart disease.

In 1958, we decided to adopt an aggressive approach to pericarditis. We resolved to submit patients with pericarditis of uncertain etiology to

biopsy, at the earliest practical moment. In the two years we have had four patients in whom we felt biopsy was indicated.

Case No. 1

A 27-year old man was admitted to the hospital on April 21, 1960, complaining of epigastric and chest pain. The patient denied any previous respiratory infections. He awoke on the morning of April 21, 1960, with dull pain in the epigastrium. Several hours after going to work, the pain became excruciating and the patient was brought to the hospital. Past history was unremarkable save for an appendectomy performed in 1948.

Examination revealed an acutely ill man in great discomfort. Temp. 101; Pulse 118; Resp. 24; BP 118/70. Head and neck-Normal. Lungs-Cleal to percussion. Breath sounds were normal. Heart-Not enlarged. No thrills or murmurs were present. No friction rub was present. No pulsus paradoxicus was demonstrated. Heart sounds were of poor quality. Abdomen—Tense. There was tenderness and guarding in the epigastrium. No organs or masses were palpable. Extremeties—Normal, EKG —Showed a sinus tachycardia. Chest X-ray—Normal. Flat plate of abdomen-No free air. RBC 5.2 million. Sed. Rate 86mm, Westergren. Hb. 14; WBC 13,600; P. 78; L. 21; E. 1. Urine-Negative. Amylase 65 Samogyi Units. The diagnosis was in doubt. The patient was felt to have an acute gastritis. A Levine tube was inserted and nasogastric suction started. The patient was sedated.

That afternoon the patient was feeling better. However, his pulse was 130. No friction rubs were audible. EKG at this time revealed ST elevations in II, III, AVF, V4, Vt, and V6. No Q waves were present. A diagnosis of pericarditis was made. The following day a pericardial friction rub was audible.

Laboratory Work—Skin test for Histo. and Cocci—Negative. PPD #1 and 2—Positive. ASO—titer—600 Todd units. Three LE Preps—Negative. Urea—28.6 mgm.

Because of a positive tuberculin skin test and inability to differentiate tuberculosis from idiopathic pericarditis, a pericardial biopsy was performed on April 26.

Pathology report of section of pericardium reveals dilated vessels filled with red blood cells. There is perivascular infiltration with neutrophils.

This is in keeping with diagnosis of "idiopathic pericarditis".

Course: The patient was started on 40 mgm of Methyl-Prednisilone a day. He made an unevent-ful recovery and was discharged home six days after his biopsy with a normal temperature and sedimentation rate. Two weeks later the patient had returned to his full time work as an electrician.



Figure 1

Case I: This is a section of pericardium with dilated blood vessels filled with red blood cells. There is perivascular infiltration with neutrophils. This is in keeping with the diagnosis of idiopathic pericarditis.

Case No. 2

A 39-year old white male was admitted to the hospital on June 16, 1960, in serious condition. He gave a history of increasing fatigueability commencing three months before admission. He denied any respiratory infections. Six weeks before admission, the patient noted marked exertional dyspnea. Three weeks before admission he described "two pillow orthopnea". For a week prior to entering the hospital, he was too weak to leave his house. He had chills and temperature of 102 degree. He denied any joint pains. He did notice several minor nose bleeds. He did not describe any ankle edema. Finally, on June 16, 1960, he called a physician, who referred him to the hospital.

Examination: Temp.—102 degrees; Resp. 26; Pulse 140; BP 118/88. Patient was a cyanotic appearing male in acute distress. Head—Face edematous. Eye grounds—Normal. Neck—Supple; neck veins were distented; thyroid was not palpable. Heart—Enlarged to anterior axillary line.

Dullness down entire sternum. There was a harsh to and fro, friction rub over the entire pericardium. Lungs—There was dullness and diminished breath sounds at the base. Crepitant rales were present at the left base. Abdomen—The liver was palpable three fingers below the costal margin. No other organs were palpable. No ascites was present. Extremeties—There was one plus pitting edema of the ankles. Fingers and toes were not clubbed, but were cyanotic.

Laboratory—Hb—11.5; RBC—3.6 million; WBC—18,600; P—86; L—13; E—1. Urine—Albumen 2+; Sugar—Negative; Spec. Gravity 1.012. Mic.—No WBC or RBC. Sed. Rate—130mm Westergren. Urea—N-26. Prot.—6.6 Grams. Alb.—3.4 Grams. Glob.—3.2 Grams. Ceph. Flocc.—Negative. Thymal 4 Units. Three Blood cultures—Negative. Three L E Preps—Negative. VDRL—Negative. ASO—titer—400 Todd Units. Histo., Cocci., and Burcella skin tests—Negative. TB. Skin Test—(PPD#1)—Positive. Muscle biopsy showed no evidence of periarteritis.

EKG—Sinus Tachycardia, inverted T waves present in all leads. The EKG was in keeping with diffuse pericarditis or myocarditis.

Fluroscopy and X-Ray of heart revealed the evidence of pericardial fluid, cardiac decompensation and a right hydrothorax, with a diffusely enlarged heart.

Course: The patient was digitalized, placed on a low salt diet and given mercurial diuretics. A thoracentesis obtained 1500 cc of fluid with a specific gravity of 1006. Culture of fluid was negative. TB culture was negative.

Six days after admission, we attempted a pericardial biopsy. As the patient was being anesthetized, his tracing on the cardioscope revealed ST depressions of 10 mm or more. The anesthesia was discontinued and the patient was returned to his room, He was started on Methyl-Prednisilone 40 mgm a day. There was a prompt fall in his temperature to normal levels and his pulse rate fell to 80-90 a minute. Three days later a pericardial biopsy was performed uneventfully.

Pathology report: The mesathelial surface is normal. The fibrous tissue is edematious and congested. There are a high number of neutrophils present. This is in keeping with non-specific pericarditis. Culture of pericardial fluid found was sterile.

Course: The patient was treated with gradually diminishing doses of steroid. His failure cleared.

His friction rub disappeared. His sed. rate fell to normal, as did his white blood count. He was discharged ten days after biopsy to be followed by his physician in California. At the time of discharge he was on 12 mgm of Methyl-Prednisilone a day, Digoxin 125 mgm a day and a low salt diet.



Figure 2

Case II: This is a section of pericardium. The mesathelial surface is normal. The fibrous tissue is edematous and congested. There is a high number of neutrophils present. This is in keeping with nonspecific pericarditis.

Case No. 3

A 48-year old female was admitted to the Gynecological Service of the Flagstaff Hospital on March 17, 1958, for treatment of carcinoma in situ of the cervix.

The patient had developed vague substernal pain in Las Vegas, Nevada. This was associated with increasing dyspnea. Physical examination in that city had been unremarkable save for an erosion of the cervix. She was advised to be reexamined in one month.

She was examined by Dr. R. O. Young, of Flagstaff. Papanicolaou smears from the cervix were positive for malignant cells. The patient was admitted for a cold knife conization of the cervix and further treatment as indicated. On March 18. 1958, a cold knife conization, revealed intra-epithelial carcinoma of the cervix.

The following day, the patient had a temperature of 101 degrees. She received Penicillin. On March 20, 1958, her temperature was 104 degrees, and the patient was acutely ill. Examination by a medical consultant was requested.

Physical Examination: Temp. — 104 degrees:

Pulse — 140; Resp. — 32: BP — 180/100. Head and neck — Unremarkable. Lungs — Rales in both bases. Heart — Enlarged to left by percussion. Harsh grade III to and fro friction rub over the pericardium was evident. Abdomen — Liver enlarged two fingers below the costal margin. No masses or ascites were present. Extremeties — No pathology noted.

Laboratory — CBC — Hemoglobin 13 RBC — 3.9 million WBC — 7,450; Polys. 82; Lymphs. — 17. Urinalysis — S.G. — 1016; Alb.—Neg.; Sugar — neg. Micro. — Neg. Sed Rate — 76 nm/hr. VDRL — Neg. Three L.E. Preps. — Neg. Histo, Cocci Tests — Neg. TB Skin Test — Positive. EKG — "Sinus Tachycardia, diffuse T-wave changes compatable with pericarditis". Chest X-ray — "Heart diffusely enlarged. There is evidence of congestion in bases of both lungs". Blood Cultures — March 19, and March 24. — Neg.

Treatment and Course: The patient was treated with oxygen, demerol, digoxin, and mercuhydrin. The following day the rales were no longer present and hepathomegaly was no longer demonstrable. However, the fever and tachycardia persisted. Therefore the patient was started on methylprednisilone 16 mgm a day. The fever and tachy-

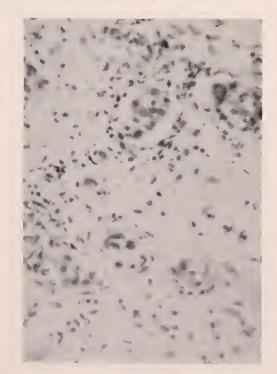


Figure 3

Case III: Focal acute and chronic pericarditis with metastatic adenocarcinoma. This does not appear to be from the cervix.

cardia responded immediately to steroid therapy and were normal within 48 hours.

Because the skin test for tuberculosis was positive, it was impossible to rule out tuberculosis as the etiology of the patient's pericarditis. Therefore, on March 29, 1958, a pericardial biopsy was performed.

The pathologist reported: "Focal acute and chronic pericarditis with metastatic adenocarcinoma. Advise — This carcinoma is not from the cervix".

GI Series, barium enema, IVP and breast examination failed to reveal any tumors. Because of the metastatic disease to the pericardium, a hysterectomy was not performed. The patient was discharged asymptomatic on March 31, 1958. She was taking 16 mgm of methylprednisilone a day. The patient was maintained on gradually decreasing amounts of steroids until June, when she moved back to Nevada, We were informed in February of this year, that the patient died in Nevada, but we have no information about the circumstances of her death.

Case No. 4

A 46-year old female entered the hospital on April 8, 1960, complaining of weakness, anorexia, increasing dyspnea and edema. One month prior to admission the patient noted weakness and anorexia. Ten days before admission she noted exertional dyspnea. Ankle edema appeared one week before entry. On the day of admission the dyspnea became so severe the patient sought admission.

Pertinent Physical Findings: Temp. 99.8; Pulse 110; Resp. 24; BP 118/87. There was distention of the neck veins. The heart appeared to be enlarged to percussion. A friction rub was present over the pericardium. There was dullness and diminished breath sounds over the bases of both lungs. The liver was enlarged. A fluid wave was present in the abdominal cavity. There was 2+edema of the legs.

Laboratory: Hg. 10; RBC 312 million; WBC 6,100 million; L. 22. Urine—Neg. Sed Rate—106 mm Westergren. Three L E Preps.—Neg. Urea—62 mgm. Skin Test—Tb, Cocci, Histo, Brucella—Neg. EKG—Diffused T wave inversions, in keeping with pericarditis.

Chest X-ray plus Fluroscopy—Bilateral Pleural Effusions. The heart was diffusely enlarged with fluid in the pericardium.

Thoracentesis—Removed 1500 cc of clear fluid with Specific Gravity 1018. No malignant cells were found. Cultures of fluid were negative.

On April 16, 1960, a pericardial biopsy was performed. This revealed pericardium replaced by a very anaplastic appearing tumor.

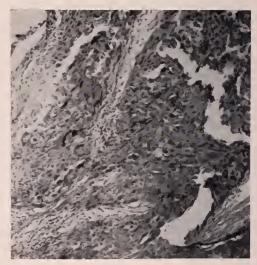


Figure 4

Case IV: This is a section of pericardium revealing almost entire replacement, by a very anaplastic tumor.

The surgeon placed Thio-Tepa in the pericardium. Despite parenteral Thio-Tepa, 5-Flurouracil and radiation therapy, the patient went rapidly down hill and died.

Conclusion

It is the authors hope to be able to demonstrate the importance of establishing the correct etiology of an individual case of pericarditis. We feel that biopsy of the pericardium is a safe procedure in the hands of a skilled anesthetist and a competent surgeon. We feel it is the best method to establish the etiology of an obscure case of pericarditis at the present time.

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Repository Triamcinolone in Allergic Disorders

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In the past, oral corticosteroids offered the only effective co-seasonal treatment for many resistant cases of hay fever. Antihistamine or hyposensitization therapy, or even a combination of the two. frequently was not sufficient to control previously untreated patients. While oral steroids often have produced extremely gratifying results in this condition, their use is frequently accompanied by undesirable side effects. This problem often makes it difficult to decide whether the risk of untoward reactions warrants alleviation of the typical symptoms associated with ragweed pollinosis.

Recently, however, a parenteral repository form of triamcinolone* was made available as a diacetate salt. In oral form this synthetic steroid has already proved extremely potent and much less toxic than older steroids.² Superiority of this product is largely a result of its lack of influence upon electrolyte balance^{2,3,4} and its greatly decreased

tendency to induce excessive hunger⁴ and upset psychic equilibrium.²

Repository parenteral administration utilizes all the advantages of oral triamcinolone and adds certain unique refinements of its own. Brown⁵ has reported 3 major benefits obtained from intramuscular use of repository corticosteroids. These are: Elimination of gastric irritation. More uniform absorption. Closer patient supervision.

Many advantages and extensions, of course, are inherent in these observations.

Some patients are readily susceptible to various symptoms of gastric distress. Other patients with history of peptic ulcer or steroid-induced ulcers are considered poor risks for further corticosteroid therapy. Although no confirmed correlation exists, there appears to be a much lower incidence of such complaints resulting from parenteral administration. This may be because of the absence of local gut irritation which is encountered when steroids are taken by mouth.⁶

The nature of this compound and the fact that it is injected intramuscularly results in slow, grad-

From the allergy clinics of Harlem and Knickerbocker Hospitals, New York City.

^{*}Aristocort® Diacetate Forte Parenteral, trademark of Lederle Laboratories, a Division of American Cyanamid Company. Pearl River, New York.

ual absorption, in turn providing for sustained activity and possibly accounting for a decrease in untoward reactions.

The advantages of closer patient supervision are obvious. For one thing, an individual can no longer increase his dose upon personal initiative. Furthermore, his general status can be more closely observed, since he must perforce present himself at the office at regular intervals for further injections. Some of these advantages seemed ideally oriented toward treatment of patients with refractory ragweed pollinosis.

We were particularly concerned with the advantages parenteral therapy may have over oral administration of steroids in selected conditions. The following 5 criteria, as suggested by Friedlaender,⁷ were used as guidelines in carrying out this study. Comparisons were made with respect to:

Greater efficacy.
Faster onset of effect.
Sustained action of single dose.
Lower incidence of side effects.
Ease of administration.

Procedure

A total of 77 patients were chosen for inclusion in the study. Most of them were seen at the allergy clinics of Harlem or Knickerbocker Hospitals; the remainder were private patients under care of the authors.

The patients fell naturally into three groups. Of the total, 43 patients, who had either hay fever, pollen asthma or a mixture of both components, were placed in one of two categories. In Group I were 22 patients, most of whom had received previous hyposensitization therapy. These patients were treated with intra-muscular injections or triancinolone diacetate along with a variety of antihistaminic agents, sympathomimetics by inhalation, and other adjunctive medications.

Patients placed in the group had not responded to conventional treatment nor had they obtained relief from additional medication. For this reason they were thought to be a group ideally disposed to corticosteroid therapy in the hope that this new form of treatment would be able to relieve them of their symptoms.

The remaining 21 patients (Group II) were admitted to our care when they appeared during

the season with typical symptoms of ragweed pollinosis. This group, of whom only four had previously received (at least one prior to initiation of this study) ineffective ragweed-extract hyposensitization therapy, were treated with intramuscular injections of triamcinolone diacetate and no other medications. None of the four patients previously treated exhibited any carry-over effect or any benefit from the hyposensitization treatment administered prior to the 1960 season.

In a sense these patients represented a form of controlled experimentation since it is well known that those allergic who were left untreated will manifest symptoms of hay fever during the six week season. Absence of symptoms, therefore, would indicate benefits of corticosteroid treatment.

With the exception of symptomatic concomitant therapy, the two groups were essentially homogeneous. Skin tests were positive in each group for such allergens as ragweed (all patients), grasses, dust, trees, molds, animal dander, kapok, feathers, and foods.

The third group consisted of 34 patients with a variety of conditions, the largest category containing individuals with mixed bronchial astluna and emphysema. Other disorders treated were allergic and vasomotor rhinitis, contact dermatoses, atopic eczema, and urticaria.

Frequency of injection and dose varied with the severity of the condition and individual response of each patient. Children received an average of 12.5 to 25 mg. per injection and adults from 25 to 50 mg. per dose. The injections were given intramuscularly, usually with a 21-gauge needle, into the deltoid or gluteal regions at intervals ranging from three days to three weeks. Nasal smears and differential blood counts were done before, during, and after treatment.

Results

An extremely gratifying response to triamcinolone diacetate was observed in most patients. The two groups of patients with hay fever are compared in Table 1.

In the group (I) receiving other medication in addition to triamcinolone diacetate, satisfactory results were obtained in 86 per cent of the patients.

In Group II, comprising those patients receiving only triamcinolone diacetate, favorable responses were obtained in 91 per cent of those treated. The difference between the two groups was not statistically significant.

Effectiveness of the medication was judged primarily by subjective measurements. Two standards of evaluation used were onset of signs of relief following injection of triamcinolone and duration of activity. Measurements were made of the patient's comfort following injection with respect to sneezing, rhinorrhea, nasal congestion, conjunctivitis and pharyngitis.

An "excellent" result was recorded for patients experiencing relief within approximately 12 hours and lasting for at least one week; a "good" result was one in which partial relief was obtained; a "poor" result was one in which there was no relief following administration of the drug.

Only five patients (12 per cent) did not respond favorably to intramuscular injections of triamcinolone. No explanation can be offered for these failures other than the fact that these patients were the most refractory of those seen and had not previously responded to any form of therapy.

TABLE 1

Response of Hay Fever Symptoms to Treatment with Triamcinolone Diacetate Combined with Other Therapy (Group I) and Triamcinolone Diacetate alone (Group II)

	G	roup I	Group	II
No. of Patients	22		21	
Age (average)	36		22	
Sex				
Female	13		14	
Male	9		7	
Results				
Excellent	15	68.2%	13	61.9%
Good	4 3	18.2	6	28.6
Poor	3	13.6	2	9.5
	_		—	
	22	100.0%	21	100.0%
Onset of effect (average)*				
	17 I	nours	16 hc	ours
Duration of effect (as	verage)		
	13 c	lays	12 da	ys

^{*}As explained in the text, figures for onset can be considered only as reasonable approximations.

In Table 2 are indicated the results of treatment in other allergic conditions. Tabulation shows that 33 out of 34 patients responded favorably to intramuscular injections of triamcinolone diacetate. Some of these patients also had been given other medication prior to and during the study. All other medication, however had proved ineffective in controlling their symptoms. Remarkably rapid

(within 2‡ hours) relief was obtained in poison ivy and other contact dermatoses.

TABLE 2

	Number	Results			
	of Patients	Excellen	t Good	Poor	
Bronchial asthma	20	15	A.	1	
and emphysema Allergic rhinitis	1	-	1		
Perennial vasomotor	3	1	9	_	
Allergic dermatitis	7	5	2		
Urticaria	3	3	_	_	
Total	34	24	9	1	
	100.0%	70.6%	26.5%	2.9%	

As seen in Table 1 the average onset of the effect of triamcinolone was noted in 16 to 17 hours. While relief sometimes occurred within six hours, occasionally it was not until 24 hours after injection that patients became noticeably more comfortable. (Patients were not seen again until one week after receiving the first injection; if, when asked how soon their symptoms were relieved, patients replied: "the next day," then onset of effect was recorded as occurring in 24 hours. This is obviously an approximation and probably an exaggeration of the actual time required for initiation of relief.) In many instances 25 mg. or less was administered intramuscularly. Larger doses would probably decrease this reaction time. On the other hand, initiation of effectiveness does not occur rapidly enough to warrant use of this form of steroid therapy in life-threatening situations.

Effects of the medication lasted, on the average, almost two weeks, while in one patient a single injection maintained relief for 30 days. Relief lasting three weeks following one treatment was not an uncommon finding.

Gurney and Cryst,^s reporting on eosinophilia in allergy, found that eosinophil levels are higher in patients with bronchial asthma than in those with allergic rhinitis. However, they could not correlate increased counts with severity of symptoms. Results of this study tended to corroborate these earlier findings, as eosinophilia often was observed during periods when patients remained asymptomatic under therapy. Results of nasal smears also were inconclusive.

Injections were administered with no difficulty into the deltoid region. A 21-gauge needle generally was used, but the fine particle size of the suspension enables use of needles with smaller bores.

Tenderness at the site of injection, lasting for one hour at most, was reported by a few patients. No untoward local effects such as atrophy, sterile abscess or fatty necrosis, were observed nor were any systemic side effects reported.

Comment

Psychogenic factors, intercurrent respiratory infections, varying pollen count (the 1960 ragweed season, during which this study was performed, was relatively mild in the New York City area), and placebo reactors contribute towards the difficulty in evaluating any treatment of allergic respiratory disorders.9 Double-blind studies of such patients seem to be both inconvenient and unnecessary since past studies have shown that results of such experiments are often misleading.

On the other hand, when patients exhibit obviously significant relief from therapy limited to corticosteroids, the conclusion may be drawn with justification that such amelioration of symptoms can be attributed only to this new form of therapy. Only on the basis of treatments of large numbers of patients and comparison of results with previous experience, can emerging trends begin to lend themselves to meaningful conclusions.

Results of this study seem to indicate that significant benefits result from use of repository triamcinolone in allergy. During the pollen season the more severely disturbed patients are usually found among those who have not been previously treated with hyposensitization therapy. Of the 21 patients in Group II who were treated with triamcinolone alone, only four had received previous hyposensitization therapy. All but two of this group experienced appreciable relief of their allergic symptoms.

The remaining individuals (Group I), those who received medication in conjunction with intramuscular triamcinolone, are more difficult to evaluate. However, it was quite obvious that most symptoms of these patients were not adequately

controlled until intramuscular injections of triamcinolone diacetate were administered.

Summary and Conclusions

Corticosteroids are not recommended as routine treatment for hay fever or pollen asthma. However, they have proved most effective in the symptoms associated with these and other allergic disorders in patients who have not responded to more orthodox types of treatment.

The intramuscular administration of the parenteral form of triamcinolone diacetate afforded satisfactory symptomatic relief in 88 per cent of patients with ragweed pollinosis. The repository nature of this drug resulted in certain unique advantages. Prompt relief was observed, usually well within 24 hours, while results of one injection were occasionally evident for as long as three weeks. Favorable responses were also achieved in mixed bronchial asthma and emphysema, contact dermatitis and other allergic conditions. No difficulties with administration or any signs of local or systemic side effects were encountered.

These gratifying results seem to suggest that intramuscular administration of triamcinolone diacetate is a valuable adjunct in the treatment of allergic diseases.

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How to Write a Prescription

in the Second Half of the Twentieth Century

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In the second half of the 20th Century there are some differences in the practice of medicine which must be reckoned with, and some changes in the art of prescription writing will be necessary.

What are the differences in the practice of medicine? First, the science of medicine has provided us with more effective, more potent and more hazardous medicines. Second, our patients are better informed, more inquisitive and less credulous of the "mysteries" of science. Third, both patients and doctors travel more, and for this and other reasons medications should always be labeled. Customs and the practice of prescription writing must reckon with these changes.

There is a reluctance to give up deeply rooted customs in the practice of medicine, but the doctors of the second half of the 20th Century will—as doctors always have done—decide the issue by doing what is best for their patients.

Many years ago an old doctor jokingly told me that there were only five really effective medications and that you could name them on your fingers: morphine for pain, digitalis for heart failure, quinine for malaria, bromide for anxiety and mercury for syphilis. He said that when he was perplexed, he held up his fingers and said: "eenie, meenie, miney, mo"! There certainly have been some changes.

Very few prescriptions today are compounded by the pharmacist, and that is a change for the better, since the large pharmaceutical firms can compound medicaments with scientific controls, adequate research and testing, and with economy. For this reason it is well in prescribing a compound medication to indicate the name of the manufacturer of the product. This makes for accuracy.

Many years ago prescriptions were written in Latin or in abbreviated Latin, and it was a custom to scrawl the prescription so illegibly that it became a popular joke that only a pharmacist could read a doctor's writing and that the pharmacist used his own best judgment. These customs will pass in the second half of the 20th Century along with the aurora of secrecy.

It has been argued that patients should not know what they are taking and that they should have faith in their doctor sufficient to follow his instructions without question. In the future patients will have more confidence in the doctor who has no ignorance to hide and who is open and frank with his patient. The art of medicine will always be such that there are things which a good doctor should say or which he should not say to a given patient, but secrecy in prescription writing will pass.

A prescription should be written legibly and in the language of the pharmacist to whom it is written, and the instructions should be in the language of the patient who is to follow those instructions.

The doctor who is wise in a medico-legal way will see that all of his prescriptions are recorded in the patient's office record, and this has become a valuable aid to the care of patients. Most practice now is done in the doctor's office, and adequate records are necessary.

A wise doctor always has careful respect for the administration of any chemical or physical agent to the human body. There is no drug that does not present some degree of hazard to the patient, and the same is true of all physical procedures including surgery. Some drugs are more hazardous than others, and some have a reputation for danger that is not always deserved.

Nevertheless, the doctor who prescribes a drug recognized as being hazardous must, according to law, inform the patient of the hazard just as a surgeon must obtain permission to operate. This custom will prevail in the second half of the 20th Century. When the doctor instructs the pharmacist to label his prescription with the name and size of a drug, he has partially fulfilled this obligation of informing the patient.

Labeling prescriptions is fast becoming a cus-

tom, and the principal reason for this is the fact that both doctors and patients travel about more now than ever before, and there is a high probability that any patient will be seen in the course of his illness by a second doctor, and that doctor must know what has been prescribed. So, if you are prepared to meet the challenge of the second half of the 20th Century, tell your pharmacist to label your prescriptions. Your patient will appreciate this. Rarely will it cause any trouble. More often it will keep the doctor out of trouble, and occasionally it prevents a mistake such as giving a drug which the patient does not tolerate.

Careful and proper prescription writing leads to good relations with patients. Not rarely this is the only tangible reward which the patient has in return for the green stuff he gives your secretary.

And take this final pearl with you; the hand that rocks the cradle is the hand that selects the family doctor. If you want to make a hit with her, use her first name on the prescription together with the family name. This makes her feel recognized as an individual, and the modern woman likes that.

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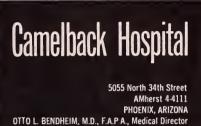
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81ST ANNUAL MEETING

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VOL. 44, NO. 4



April, 1963



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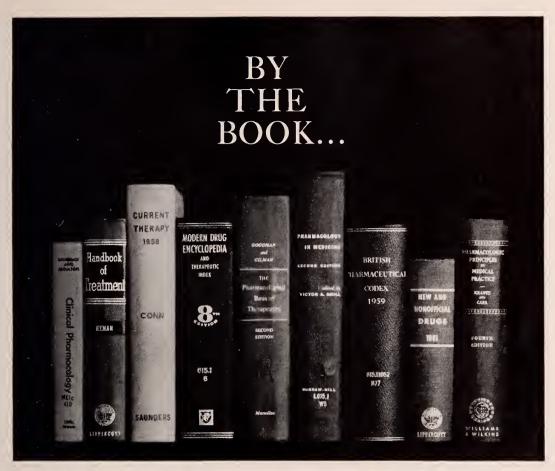
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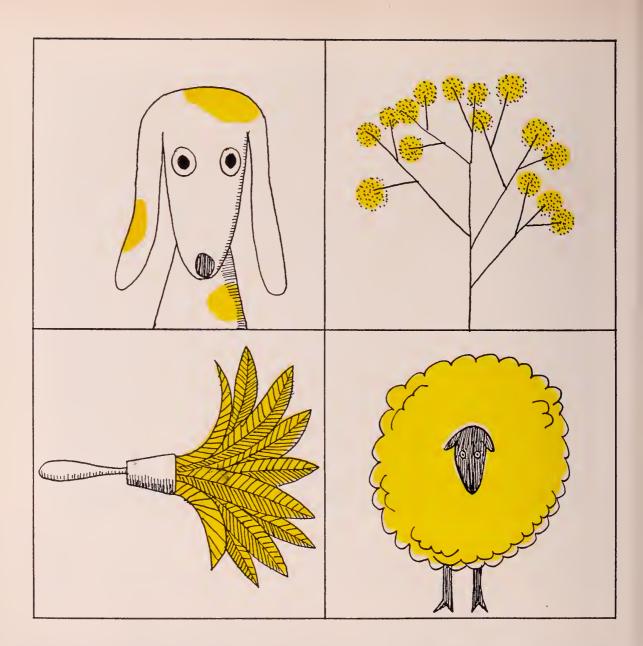
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VOL. 44

APRIL, 1963

NO. 4

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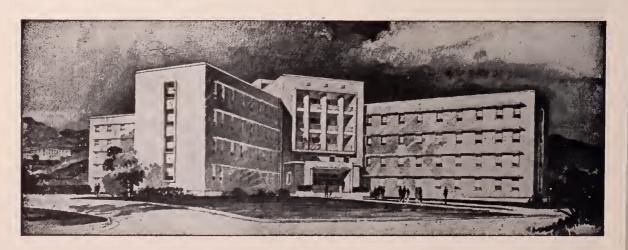
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References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. 9:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. 63:545 (Apr.) 1960. (3) Hutchison, J. C.: Current Therap. Res. 4:610 (Dec.) 1962. (4) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. 10:516 (June) 1962. (5) Feldman, L. H.: North Carolina M. J. 23:248 (June) 1962. **FAUDIKIN'® AND **MATURETIN'® AND **MATURETIN'® AND **FAUDIKIN'® AND **MATURETIN'® AND **FAUDIKIN'® AND **MATURETIN'® AND

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Coming Meetings

New Mexico Medical Society, 81st Annual Meeting, Western Skies Hotel, Albuquerque, April 24-26, 1963.

Texas Medical Association, 96th Annual Session, Adolphus and Baker Hotels, Dallas, April 28-30, 1963.

United States-Mexico Border Public Health Association, Annual Meeting, Nogales, Ariz., April 29-May 2, 1963.

New Mexico Chapter, AAGP, Ruidoso Summer Clinic, Ruidoso, N. M., July 15-18, 1963.

University of Colorado School of Medicine, 6th Annual Postgraduate Course in Pediatrics, Stanley Hotel, Estes Park, Colo., Aug. 5-9, 1963.

American Academy of Physical Medicine and Rehabilitation, Annual Meeting, Sheraton-Dallas Hotel, Dallas, Aug. 26, 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southwestern Medical Association, 45th Annual Meeting, Holiday Inn, El Paso, Nov. 14-16, 1963.

Writing Awards Contest

The second annual \$500 Writing Awards Contest for the best original scientific articles published in Southwestern Medicine is governed by the following rules:

Awards will be made in two classifications: Regional and National. All physicians who practice in West Texas, Arizona, New Mexico, Nevada or Northern Mexico (States of Sonora and Chihuahua) are eligible to compete for the Regional Awards. Physicians in the United States outside the Regional Area may compete for the National Awards.

Original scientific articles published in *Southwestern Medicine* between Sept. 1, 1962, and Sept. 1, 1963, will be eligible for the 1962-1963 contest.

Awards will be made in the following amounts for original scientific articles written by physicians in the Regional Area: \$100 for the best paper; \$75 for the second best paper; and \$50 for the third best paper.

Awards for original scientific articles in the National classifica-tion will be made in the following amounts: \$100 for the best

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An additional \$50 will be set aside annually to establish a fund for a special classification to be known as the Intern and Resident Writing Awards. Original scientific articles submitted by resident physicians and interns of the Regional Area will be eligible for special awards to be announced at a future date.

Contributions must be written in English. They must be typed, double spaced, on one side of the paper only. All papers should be submitted to Lester C. Feener, M.D., Editor, 310 North Stanton Street, El Paso, Texas.

As with all official medical journals, only those papers found acceptable by the Board of Editors of the journal will be published.

The Writing Awards have been established by Paul I. Murphy, President of Medical Research Association of New York and Boston, to encourage improvement in medical journal writing. Judging will be done by the educational committee of the American Medical Writers' Association.



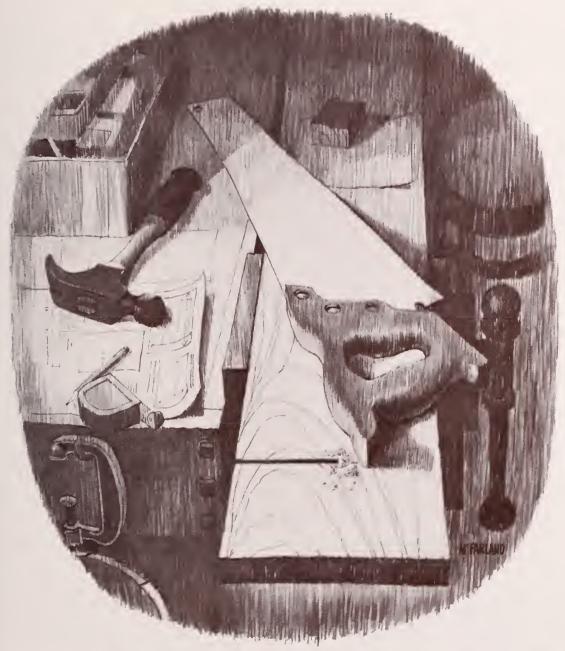
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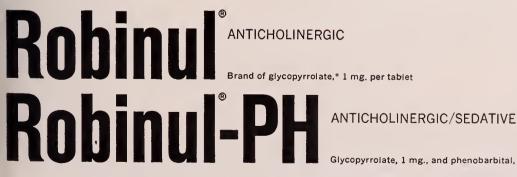
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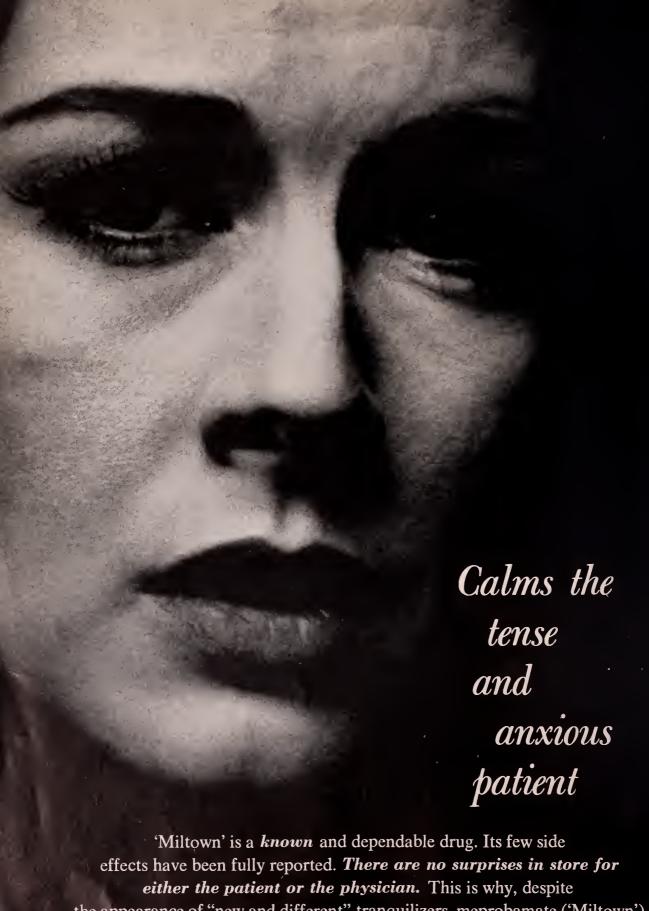
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REFERENCES: 1. Moeller, H.C.: Ann. New York Acad. Sc. 99:158, Feb. 28, 1962. 2. Epstein, J. H.: Am. J. Gastroent. 37:295, 1962. 3. Sun, D. C. H.: Ann. New York Acad. Sc. 99:153, Feb. 28, 1962. 4. Posey, E. L., Jr.: Am. J. Digest. Dis. <u>7</u>:863, 1962. 5. Young, R., and Sun, D. C. H.: Ann. New York Acad. Sc. <u>99</u>:174, Feb. 28, 1962.

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Transplantation of the Bulbocavernosus Fat Pad for Closure of an Unusual Vesicovaginal Fistula

JOHNNIE R. BETSON, JR., M. D.*., Costa Mesa, Calif.

Carcinoma of the urethra is a comparatively infrequent neoplasm as indicated by sporadic reports. The surgical procedure necessary to remove the neoplasm may be extensive with removal of the urethra, paraurethral area and not infrequently a portion of the urinary bladder. Owing to the wide dissection, partial urinary cystectomy and closure under tension with subsequent pelvic irradiation result in decrease in vascularity with an increased probability of formation of a vesicovaginal fistula. Since there is a scarcity of tissue for closure of the defect, repair may present a problem.

The usually described surgical techniques for closure of this type fistula, may not be adequate. In a recent paper the indications for the bulbocavernosus fat pad transplant have been presented. Although the condition presented is relatively rare, nevertheless it is felt that this procedure is indicated for the type of vesicovaginal fistula after urethrectomy and partial urinary cystectomy for carcinoma of the urethra. This is an additional case with a vesicovaginal fistula in a different and difficult location for repair.

Case Report

L.C.: This 77 year old Spanish female was first seen on November 13, 1959, with a history of hematuria, dysuria, pyuria and nocturia of approximately one year's duration. She had consulted another physician who undertook the initial biopsy of a urethral mass which was reported as a "papillary carcinoma of the urethra". The patient was then referred to this Clinic and a review of the pathological specimen and re-biopsy of the neoplasm was reported as a "poorly differentiated infiltrating carcinoma". The patient was then given 2730 Roentgens of Cobalt⁶⁰ teletherapy, directed

toward the tumor, over a period of 32 days. There was a prompt subsidance of the hematuria, dysuria and frequency.

In September 1960 the symptoms recurred. The woman was then admitted to Bataan Memorial Hospital where a hard, non-tender, urethral mass, the size of a lemon, was found. There was ulcerative necrosis with bleeding anteriorly. The vaginal and cervical mucosa were atrophic. The uterine fundus was surgically absent, and the adnexae were not enlarged. A repeat biopsy revealed a "transitional cell infiltrating carcinoma". An excision of the urethra and a partial resection of the urinary bladder was carried out and closure was performed under considerable tension. A suprapublic cystotomy was performed and an indwelling de Pezzar catheter was left in the bladder to allow counter drainage.

Following the operation the patient was given Nitrogen Mustard and Achromycin intra-arterially. A vesicovaginal fistula then occurred under the right ramus of the pubis. The usual three gram course of cortisone, according to Collins, was given over ten consecutive days but the fistulous tract failed to heal spontaneously. Care must be taken to prevent infection from contaminated urine and appropriate prophylactic coverage by antibiotics is considered necessary.

The patient was then referred to the Gynecology Section for evaluation and the possibility of closure of the fistula by a bulbocavernosus fat pad transplant. This procedure was carried out on March 23, 1961, in the following manner. The bulbocavernosus fat pad transplant procedure commenced with incision of the vaginal mucosa directly over the fistulous tract area. Mobilization of the tissue under the right pubic ramus was difficult due to the site of the fistulous tract which was next to the periosteum.

^{*}Formerly, Department of Obstetrics and Gynecology, Lovelace Clinic, Albuquerque

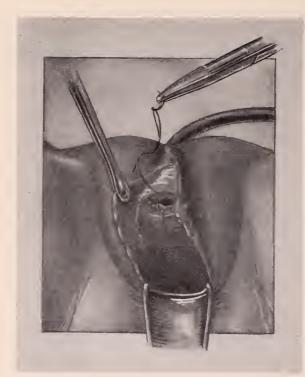


Figure 1

The fistulous tract was dissected free, the bladder mucosal edges (Fig. #1) were freshened and sutured under as little tension as possible. An incision was made in the skin over the right labium majus. A fat pad was formed (Fig. #2) which was approximately one inch thick and some three to four inches in length. This structure was al-

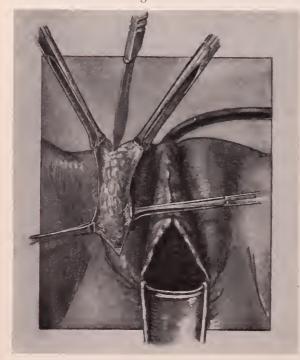


Figure 2

lowed to remain attached posteriorly. By blunt dissection, a tunnel was made from the incised area of the fat pad through to the vaginal mucosal incision. (Fig. #3) The fat pad was pulled through the channel formed and was sutured directly over the fistula (Fig. #4) Another suture was used to secure the fat pad in position.

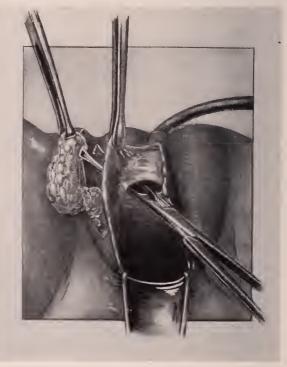


Figure 3

The vaginal incision was closed in the usual manner. (Fig. #5) The labial incision was closed using 2-0 catgut sutures and a rubber drain was brought through the lower portion of the labial incision to allow drainage of serum and tissue fluids. The drain was completely removed on the third postoperative day.

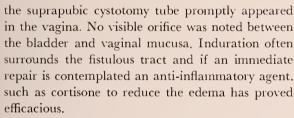
Comment

The multifaceted potentials and indications for the bulbocavernosus fat transplant operation have been documented^{3,4,5,} and some illustrative cases have been re-emphasized in a recent paper.¹

The vesico-vaginal fistula presented here was not in the usual location, but appeared next to the periosteum of the right ramus of the pubis which prevented the usual closure by mobilization of the tissue edges. The usual preoperative studies such as cystoscopy and retrograde urography were impossible because of absence of a urethra, but methylene blue and indigo carmen injected into



Figure 4



In most cases of bulbocavernosus fat pad transplant an indwelling catheter is kept in place, but in this case the woman had a permanent suprapubic cystotomy. Often the bladder is irrigated with a dilute solution of potassium permanganate which helps cleanse it. The healing of a vesicovaginal fistula is best if the area is free of edema and induration. Estrogens may be orally and locally administered to postmenopausal women to increase the vascularity around the fistula because this tumor is not an estrogen dependent tumor, and such topical medication in small amounts may prove effective.

The size of the fistula and closure under tension govern the type of operative closure. Difficulty is more likely to be encountered if the patient has been subjected to previous operations in this area. Recurrent carcinoma is to be considered if there is evidence that proper healing of the vaginal or bladder mucosa does not occur. There was no evidence of recurrent neoplasm at the time of the fat pad transplant.

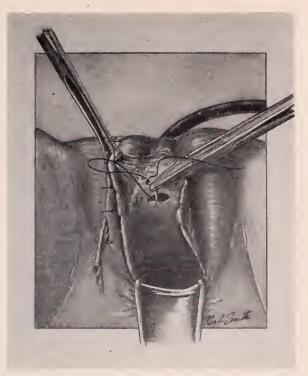


Figure 5

Adequate exposure of the surgical field with careful operative technique and proper dissection of the bulbocavernosus fat pad will insure healing. While simple fistulous tracts are successfully closed by various operative procedures it is felt that the bulbocavernosus fat pad transplant procedure has proved to be reliable in the closure of difficult types of vesicovaginal fistula. The outlook in this older woman should be good, as she has been without involuntary leakage as a result of her surgically corrected vesicovaginal fistula for approximately one year and is apparently free of cancer unless she has distant metastases.

Summary

Another indication for the bulbocavernosus fat pad has been presented in a different and difficult location for a vesicovaginal fistula.

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I wish to express personal thanks to Mr. Robert A. Smith of the Medical Illustration Department, Lovelace Clinic and Foundation, for the preparation of the ex-cellent figures used in this manuscript.

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Clinical Evaluation of Diazepam* in Psychiatric Disorders

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The first member of a new chemical class of compounds, the benzodiazepines, is chlordiazepoxide, a drug which has shown specific anti-anxiety properties and unique taming effects in animals,1 and which has proved effective against anxiety and other emotional symptoms in a wide variety of clinical trials.2-7 Chlordiazepoxide has previously been employed in this office practice in over 300 patients.8 My initial clinical impression of the drug was that it is a highly effective psychopharmacologic agent with a wide margin of safety.5 It appears to be most effective for patients with moderate to severe anxiety and tension and is least effective as an adjunct in schizophrenic disorders and usually disappointing in psychotic depressions.

A second member of the benzodiazepine class is diazepam, the drug employed in the present study. A recently introduced drug, diazepam is chemically, 7-chloro-1, 3-dihydro-1-methyl-5-phenyl-2H-1, 4-benzodiazepin-2-one. Its structural formula is compared to chlordiazepoxide in Figure 1.

Diazepam is about five times as potent as chlor-diazepoxide as a tranquilizer and muscle relaxant in animals, and at least as well tolerated as chlor-diazepoxide in animal experiments and initial clinical tolerance tests.⁹ In a variety of clinical trials, ¹⁰⁻¹⁵ diazepam has demonstrated marked effectiveness in reducing anxiety, depression, and other emotional symptoms. Evidence from some comparative trials, ¹¹⁻¹² suggests that diazepam is more potent than chlordiazepoxide.

Although Dunlop¹⁰ reported that diazepam did not excel chlordiazepoxide "in the relief and control of acute panics, severe phobias or frank anxiety states," Pignataro¹¹ reported that in his series diazepam was far more potent than chlordiazepoxide, acts more rapidly, and is apparently more effective in "tough" psychiatric problems. Feldman's results also suggest that diazepam is two to three times as potent as chlordiazepoxide.¹²

Although closely related structurally, chlordiazepoxide and diazepam may prove to have quali-

*Valium B. product of Hoffman-La Roche Inc., Nutley. New Jersey.

tatively different effects on emotional symptoms. In a clinical trial comparing reduction of target symptoms with chlordiazepoxide and diazepam, Feldman¹² reported that the two compounds acted differently. He stated that while chlordiazepoxide "may be effective in the treatment of tension and anxiety, its range of action and its anti-psychotic activity are limited." Diazepam had a beneficial effect "upon hypo-active patients and its action suggests that it is an energizer-type drug."¹²

In comparison with chlordiazepoxide, Feldman found diazepam to have a wider span of symptoms for which it was efficacious, its range of activity being quite similar to that of the energizers. Other investigators have found diazepam useful in patients with emotional disorders which have proved refractory to various drugs and treatment procedures. From the results of these preliminary trials and from my previous experience with chlordiazepoxide, the parent compound, it seemed worthwhile to evaluate the effects of diazepam in a group of psychiatric patients whose disorders had proved resistant to a variety of previously administered drugs.

Method and Material

The present study included 58 private psychiatric patients who received diazepam for various psychoneurotic and a few psychotic disorders. There were 46 females and 12 males and ages ranged from 19 to 78 years. Fifteen patients required hospitalization for their disorder.

Table I Summary of Responses to Diazepam

Diagnostic category		RESPONSE			
	No. of patients	Excel- lent	Good	Fair	Poor
Anxiety	18	4	9	4	1
Depression	13	3	8		2
Anxiety,					
Depression	8	1	3	3	1
Schizophrenia	6	2	3	1	
Psycho-					
physiological					
reaction	4		4		
Miscellaneous	9		4	2	3
Total	58	10	31	10	7
		17.2%	53.4%	17.2%	12.1%

DIAZEPAM

Diagnoses of the patients, summarized in Table I, were grouped into six categories as follows: 1) anxiety, the major symptom, with secondary symptoms in some patients consisting of phobic reactions, somatic symptoms, tension, compulsive reactions and others: 2) depression, the major symptom, with associated tension, somatic symptoms, agitation, and other symptoms in some patients; 3) anxiety-depression with associated symptoms of tension, phobias, somatic complaints and others in some patients; 4) schizophrenia: 5) psychophysiological reactions; and 6) miscellaneous psychoneurotic and psychotic disorders including senile psychosis, obsessive compulsive reaction, acute drug withdrawal psychosis, alcoholism, and others.

Most of the patients had previously received a variety of different psychotropic drugs and had responded poorly or had adverse reactions (somnolence, urticaria, agitation). Previous therapy in these patients included electroshock treatments, amphenidone, amitriptyline, hydroxyzine. monoamine oxidase inhibitors, isocarboxazid, trifluoperazine, chlordiazepoxide, and others.

Diazepam was administered orally in doses ranging from 5 mg. to 40 mg. and most patients received 10 mg. two or three times daily. Duration of treatment ranged from five days to six months with most patients taking the drug for three weeks or longer.

A total of 19 patients received concurrent therapy which consisted of amitriptyline, methylphenidate, etryptamine, chlorpromazine, promazine, tetraethylthiuram disulfide, insulin, electroshock therapy and others. Twelve of these patients received electroshock treatments during the study

CHLORDIAZEPOXIDE

period and one patient ultimately required a fronto-thalamic tractotomy.

Evaluation of results was based upon degree of symptomatic improvement and responses were classified as follows: "excellent"—marked to complete clearing of symptoms, "good"—moderate symptomatic improvement, "fair"—slight symptomatic improvement, and "poor"—no symptomatic improvement.

Results

Response to diazepam was excellent in 10 patients, good in 31, fair in 10, and poor in seven (Table I). Symptomatic improvement was observed in all diagnostic categories, and in many patients who had previously failed to respond to a variety of medications. The drug alleviated severe insomnia in several patients and facilitated psychotherapy in many. Mood elevation was noted in many patients soon after treatment was initiated. One patient with urticaria due to emotional disturbance (which had proved refractory to a variety of medications) had prompt improvement when diazepam was administered.

In another patient with drug withdrawal psychosis, diazepam gave good control of psychotic agitation, and prompt relief to severe headaches which had been resistant to various drugs for seven weeks prior to the administration of diazepam. One patient with a history of exquisite dermatologic allergies to many drugs responded well to diazepam which was administered for seven weeks, with no occurrence of dermatitis or other side effects.

Side reactions were benign only, occurred in 10 patients, and consisted of drowsiness in seven.

drowsiness and dizziness in one, nightmares in one, and feelings of "floating" in one. Two patients, both with drowsiness, discontinued the medication due to the side effect. In the other eight patients, side effects disappeared with dosage reduction, or were so minimal as to be inconsequential compared to the symptomatic benefit.

Comment

On the basis of this preliminary trial, diazepam appears to be a safe, and highly useful drug, with qualitatively different action as compared to chlordiazepoxide and other commonly used psychotropic agents. While the sample was small and the statistics more modest than dramatic, the clinical response in these selected "problem" patients was impressive in contrast to their unanimous intolerance or non-responsiveness to previous medications. Thus far, diazepam appears to have distinct clinical advantages over chlordiazepoxide and analagous drugs, in the following respects:

- (a) It was conspicuously less productive of somnolence, urticaria, pseudo-ataxia, and no extrapyramidal reactions;
- (b) It had greater therapeutic potency and less variability in effective doses (5 mg. to 40 mg. daily), and little cumulative effect beyond 24 hours;
- (c) It frequently contributed a mild but welcome energizing and mood-elevating effect; and
- (d) It was applicable in a broader spectrum of ambulatory functional disorders including tension, anxiety, and many with depressive and anergic components.

Summary

Diazepam was administered to 58 private psychiatric patients, 15 of whom were hospitalized. There were 46 females and 12 males and ages ranged from 19 to 78 years. Diagnoses included anxiety, depression, schizophrenia, psychophysiological reactions, obsessive-compulsive reaction, senile psychosis, drug withdrawal psychosis, and others. These patients had had poor responses or adverse reactions to various drugs or treatment procedures administered previously.

Diazepam was administered orally in doses ranging from 5 mg. to 40 mg. with most patients receiving 10 mg. two or three times daily. Duration of treatment ranged from five days to six

months and most patients received the drug for three weeks or longer. Concurrent therapy was administered to 19 patients and consisted of amitriptyline, methylphenidate, etryptamine, chlorpromazine, promazine, and others.

Response to diazepam was excellent in 17.2 per cent of the patients, good in 53.4 per cent, fair in 17.2 per cent and poor in 12.1 per cent. Side effects occurred in 10 patients, and consisted of drowsiness in seven, drowsiness and dizziness in one, nightmares in one, and feelings of "floating" in one. Two patients with drowsiness discontinued the medication due to the side effect. In the other eight, side effects disappeared with dosage reduction or were mild and did not adversely interfere with drug effect.

From this preliminary trial, diazepam appears to be a highly useful drug, particularly beneficial in anxiety-depression-tension syndromes. It has fewer side effects (such as urticaria, sonnolence, and pseudo-ataxia) and greater freedom from cumulative effects than chlordiazepoxide and other effective psychotropic agents in common use.

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Family Physician, State Hospital and Community

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To understand how important it is for the family physician to share the responsibility for the after-care of discharged state mental hospital patients, one must first know certain facts about psychiatric illness itself. Let us begin, therefore, by examining some of those facts.

Nature of Mental Illness

Although many psychiatric conditions are acute and transitory, most of the former mental hospital patients whom the family physician sees have a chronic mental illness, and most of these occasionally have recurrent acute exacerbations of symptoms. Furthermore, they always have a certain amount of limitation of function.

During the acute exacerbations, they will need intensified support and treatment in the doctor's office, in a local general hospital, or even perhaps for a time in the state hospital. Although neither the time, severity, nor duration of these exacerbations can be exactly predicted, the physician learns with experience to detect promonitory signs, and to predict the duration of an attack with some confidence.

Another practical fact is the one that although the underlying disease process may remain essentially the same, its clinical manifestations may shift remarkably. Thus, a patient with hallucinations, delusions, bizarre behavior, and mutism may lose all these and show only severe hypochondriasis. Conversely, a patient with apparent simple anxiety neurosis may one day develop hallucinations and bizarre behavior.

A third practical fact is the one that there are usually chronic, residual conditions which affect the patient's economic, social, and familial adjustments. These residua limit his social skill, i.e., his abilities to get along smoothly with other people. Sometimes these limitations may be very slight; the patient may just be a little shy. Other patients may hallucinate and act in

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a bizarre way that can be accepted by only the most tolerant of their friends and neighbors. One must, after each acute episode, re-assess the patient to determine a feasible plan for his readjustment to the community.

Past Management of Mental Illness

Perhaps because of the chronicity of mental illness, a patient committed in the past to a state mental hospital was just left there. The community, the patient's family, his physician, and the patient himself took it for granted that commitment was essentially a life sentence. Divorce laws permitted his spouse to free herself of him. The interpersonal patterns of families automatically readjusted on the assumption that the patient had been lost forever. Superintendents of state hospitals were discouraged by the community from discharging patients; if a superintendent rashly discharged a patient, he found that the patient's progress was closely followed by the general public. What an outcry followed any violent act perpetrated by a discharged patient however many other patients might quietly live out their inoffensive lives.

The general assumption of therapeutic nihilism supported state legislature budget committees reducing hospital expenditures to a minimum. Efficiency in state hospital administration was measured by cheapness whereby the patients were maintained. Costs of food, clothing, bedding, repairs of buildings, and heating were carefully scrutinized for possible cuts. Treatment was scarcely considered, aside from limited funds for medical emergencies such as acute appendicitis. Not infrequently the superintendent was himself neither psychiatrist nor other physician, but simply an administrator who could feed patients for a few cents per day, and keep petty pilfering by employees to a tolerable minimum.

Efforts to help the patient retain his human qualities by means of amusements, formal social events, and so on were considered ridiculous.

Visits from relatives were stingily meted out. Letters between relatives and patients were harassed by censorship. Little wonder that most relatives soon tired of struggling and quietly abandoned the patient to the hospital.

Effects of Excessive Hospitalization

Superimposed on the patient's disease, then, was the deadly effect of hospitalization. Even under the best of conditions, the most emotionally healthy person when hospitalized too long tends to excessive dependence on the hospital and great loss of self confidence. Under the ennervating conditions of the state mental hospital, the patient could do little other than to conform to the pattern of the so-called burned-out schiz.

Unstimulated by his environment; encouraged by situation, staff, and fellow patients to withdraw on his hard bench into his own thoughts; often painfully discouraged by ward staff to take any initiative; constantly immersed in a dank, yellow-ish-brown atmosphere of abject poverty; he had no hope of escape by discharge. Such conditions can, in twenty years or so, burn out anybody, whether he has schizophrenia or no.

Thus, the vicious circle prevailed. Because the hospital produced hulks of men, the appearance of those few who managed to come home even briefly simply re-inforced the general public stigmatization of the mentally ill. Because the mentally ill person was stigmatized, hospitals were maintained that produced hulks of men.

Improving Public Attitudes

Nor are we yet out of the woods so far as the public stigma is concerned. Many vigorous manifestations of that stigma prevail today, and challenge the patient's right of passage from state hospital to community. When a discharged patient fails to make a community adjustment, Bourestom² found, that failure is more apt to be due to community hostility than to continuing mental illness.

Nevertheless, conditions have changed remarkably during the past decade or so. Hospitals are no longer assuming that a committed patient must stay in the hospital until he dies. As Little¹⁴ says:

"Much effort is being made to discharge home . . . more chronic schizophrenics. This approach

sets a challenge to the toleration of the general public and the family doctor . . . it is not only more humane to try and establish such people in homes or lodgings or hostels and encourage employment, but the stimulus of this more normal way of life does seem to improve the patient's mental state."

Improving Psychiatric Therapies

Much of this change in attitude — although certainly not all of it — can be attributed to the discovery and expanding use of psychiatric drugs. Many heretofore therapeutically refractory patients have improved. Because of this improvement, staffs have more optimistically increased their efforts to get patients into social activities. Patients have begun to have a sense of future. Relatives have come to accept the idea that they may have to make room for a returning mentally ill member.

I once got a letter, while I was superintendent of a state hospital in Minnesota, from an irate relative. He was irate, it seemed, because my social service department had asked him to help with the discharge plans of a patient. "You cannot send him home," my correspondent stated flatly, "he was duly committed to your hospital and you must keep him until he dies."

Nevertheless, state mental hospitals no longer think of themselves as end-of-the-road, custodial institutions. They are eager to give intensive therapy and then, when maximum therapeutic benefit has been achieved, return the patient to his home for convalescence and any necessary further treatment. Discharge rates and patient turnover have accordingly reached the highest level of the century. Plans to build additional dormitories are being abandoned as patient censuses halt their upward flight, pause, and begin to sink even as admission rates continue to climb.

The Readmission Problem

This picture has, however, a darker side. Readmission rates are rising with the discharge rates. In my state hospital, for example, we found that for every two patients we sent out, we could expect to get one back. Naturally, staff members develop little enthusiasm for this game of psychiatric musical chairs. We therefore tried to find out just what was the matter. It was possible, after all, that our predecessors had been

quite right — that state hospital patients could not economically be returned to the community — that for the sake of the tax payer we should admit that fact and go back to much lower per diem cost figures.

Accordingly, by means of a specially created readmission clinic, we did a detailed study of every returning patient. We looked at our record of his previous admission; we looked at our opinions concerning him at time of his discharge, and why we had considered him ready to leave us; we looked at his experiences after discharge; and we looked all the more closely at him now that he had returned.

I cannot detail, here, what we found. I can say, however, that the patient usually did not seem to be any sicker, fundamentally, than he had been at time of discharge.

True, now and then he did have an acute exacerbation of his illness.

But many of these relapses, we believed, could have been avoided had the patients had a family physician to continue their ataractic drugs. Certainly, many of these patients improved almost at once after we resumed their drug therapies.

Often we uncovered some remarkable stories of rejection by family and community. This rejection so upset the patient that he could do little other than develop psychiatric symptoms that were his ticket back to asylum.

In all honesty, I must admit that occasionally we had erred as to the patient's psychiatric readiness for discharge. A more common error, however, was a naive assumption that medical, familial, and social conditions were good enough to permit the patient to make a successful adjustment.

I do not mean to imply that one can expect hospitals to have a readmission rate of zero. It is nonetheless interesting to compare our 50 per cent rate with that reported in 1961 by McNair and Elmore¹⁵. In a long-term follow-up study, they found that if patients received good support in the community, only 13.7 per cent had to return during the first two and one-half years, and only 22 per cent by the end of three and one-half years. Most of these returnees, furthermore, were so crippled psychiatrically that they could not hold jobs or assume family responsibilities.

I should also note that many of our re-admitted patients in that Minnesota hospital were soon discharged after more appropriate arrangements had been completed in the community, and that most of these were still at home when I moved to another job.

Everyone, of course, inside a state hospital and out, has a stake in keeping the re-admission rate at a minimum. When this rate is high, the function of the state hospital suffers. Staff time is wasted by the abortive discharge and the procedures of re-admission, therapeutic nihilism is fostered in staff and patients, and an unnecessarily high hospital census inflates hospital operating costs.

Re-admission is cruel to both family and patients whose hopes once awakened have been dashed once more. The time of community social agencies has been wasted. If the patient gets a job while he is out of the hospital, his re-admission inconveniences his employer and may prejudice that employer against giving other discharged psychiatric patients a chance.

Improving Therapeutic Effect of Community

This, then, is the problem that confronts the state mental hospital and its patients: How can conditions be created in the community which will increase the likelihood of the discharged patient adjusting successfully? How can the patient find proper medical care; how can his family get counselling and support to deal with him; how can necessary community agencies be created and properly utilized; and how can he be helped to take a satisfactory social and economic part in the community?

The family doctor is an obvious potential ally in solving this problem. He has, or he can acquire, the knowledge and skills needed to provide drugs and psychotherapy for the patients, counselling for their relatives, and civic planning for their communities.

Obstacles Facing the Doctor

One should have no illusions, however. For the family physician to make a significant contribution, certain obstacles will have to be overcome. Speaking of these obstacles Little¹⁴ warns:

"For a variety of reasons, the general practitioner . . . is not in a position to do all one might hope in this field. Firstly there is the question of time . . . the second limiting factor is the attitude of the doctor towards the mentally sick . . . inadequately trained . . . and feeling that the problem is hopeless, he has turned his back so often on what constitutes one-third of his work and . . . has come to believe that what cannot be perceived by the crude senses does not exist. This leads to the third limiting factor; undergraduate training. For most of the doctors now in practice the time spent in training in psychiatry has been ludicrously inadequate . . ."

It may also be that some physicians will be reluctant to undertake the after-care of patients for fear of lawsuits. Perhaps we shall have to go to our legislators for help. For example, Hare¹¹ reports that the British Mental Health Act of 1959, encourages the doctor giving after-care by protecting him against unfounded lawsuits.

"Practitioners are protected against frivolous or vexatious litigation. No one can bring proceedings without leave from the High Court, and the High Court will not grant leave unless there is 'substantial ground for the contention that the person to be proceeded against has acted in bad faith and without reasonable care'."

How the Doctor Gives Care

The physician undertaking after-care should set practical treatment goals specific for each patient. These set goals will depend in part on the patient's therapeutic responsiveness. Of them. Gordon *et al*⁹ say:

"An individual's therapeutic responsiveness depends upon:

- (1) The economic skill he has learned.
- (2) The improvability of his life situation and the role he plays in it.
- (3) The availability of helpful resources to assist, enrich, and reward him.
- (4) The total number of stresses to which he has been subjected, his constitution, and the type of reaction he developed to the stresses.
- (5) His personality and social skills.
- (6) How much he is inured to hardships.

Furthermore, Hinkle¹² points out that the goals should take into account the patient's social setting. He says that:

"People at various levels within our own so-

ciety, and members of various ethnic and regional subgroups, share attitudes, values, and experiences with regard to family, marriage, friends, associates, education, religion, dress, speech, reading habits, morality, politics, and a gamut of other learned reactions that can be predicted with some reliability, if a man's social origins are known ... if one adds...a systematic assessment of those aspects of experience that make him unique-his experiences in his family, in his development, and throughout his life to the present—as a systematic description of his milieu and his view of it, a delineation of his past preferred methods of reacting, and, if need be, an orderly assessment of his reaction to various challenging tests, one can make a reasonable working estimate of the way that a man evaluates his life situation without expanding an amount of time that is prohibitive to the clinician.

"Status loss, social mobility, or marital infidelity, and all the many human experiences that accompany them, are complex stimuli to the individuals to whom they happen, and each person reacts to them in his own fashion."

Among the obstacles to treatment of the psychotic patient in his office listed by Rosen and Friedman¹⁸ are (paraphrased):

- 1. The patient's own volatile and ambivalent attitudes.
- 2. The influence of relatives that are also volatile and inconsistent.
- 3. The prejudice of the doctor himself against psychotics.

The doctor's prejudices. Hirsh *et al*¹³ warn, may disrupt therapy.

He says:

"The feelings which arise spontaneously during the interview are often communicated non-verbally to the doctor by the patient. These feelings, to which the doctor responds but may not recognize, can reverberate back to the patient and disrupt the relationship . . . the physician-patient relationship is an emotionally loaded interaction. The patient comes with anxiety about his illness and suffering . . . patients react to their anxieties by becoming demanding, seductive, helpless, depressed

"The physician should recognize that these characteristical attitudes and behavior patterns are not directed to him personally, but are the typical manner in which the patient reacts to anxiety or a stressful situation . . . physicians sometimes become anxious in the presence of patients . . . the doctor may feel the strain as physicial exhaustion or he may experience headache, gastric hyperacidity, palpitations, etc.

"Sterotyped mannerisms and professional attitudes only serve to mask the physician's discomfort . . . they form an insulation against the patient's barrage of words, complaints, demands, etc. But they can filter out the important message of feelings and appropriate response to feelings . . ."

Some of the danger signals of a disturbed doctor-patient relationship are given by Proctor¹⁶ (paraphrased):

- 1. Doctor too impassive and non-committal (dehumanize patients).
- 2. Doctor over-evaluates heredity and constitution and thereby defends self from feelings about patient.
- 3. Blames social forces for all things.
- 4. Rejects patient by laughing at him and tricking him into ridiculous behavior and speech.
- 5. Creates schedule of outside activities so heavy he must take little time with patient—avoids personal entanglements.
- 6. Improper delegation of authority to consultants, nurses and others.
- 7. Spends much or little time with patient depending on own neurotic needs.
- 8. Excessive personal involvement with some patients and not with others.

Whitehorn²⁰ charges the doctor to be neither too directive nor yet too passive with the schizophrenic. He says:

"The physician whose schizophrenic patients did well—were quite active in the expression of their own personal opinions and attitudes on issues that arose. They did not avoid setting clear limits to the kind of obnoxious behavior that they could accept. They were conversationally active with their patients in seeking problem areas to discuss, but they exerted their leadership not . . . in an instructional, corrective or domineering style, but in an exploratory and evocative style."

And Abrahamson¹ believes that teaching the patient some health principles is an integral part of therapy. He says:

"To the doctor who concerns himself with promoting his patient's future health, health education is an essential technique. With our growing understanding of the relationship between health and patterns of daily living, it becomes increasingly apparent that, to a considerable extent, the adult's health is in his own hands, and the child's in the parent's. The general practitioner, in particular, has a special obligation and a unique opportunity."

Mostly, the patient needs someone who will give him drug therapies as needed, who will help him solve his day-to-day problems, and who will stand by him during periods of intensive psychiatric treatment in psychiatrist's office, general hospital, or state hospital.

To fill this need for brief, intensive therapy the family physician can play a most important part. When the patient's symptoms flare up, the family doctor can both help him get to a psychiatrist and fully inform the psychiatrist about him. When the patient is getting intensive treatment, the doctor can be a trusted envoy and interpreter among patient, family and psychiatrist. When the patient no longer needs intensive treatment the doctor can resume his life-long function as family doctor.

Importance of the Family

The family doctor, logically, helps the family adjust to the patient, to his illness, and to the community. He helps the family while the patient is in the state hospital, and after he has returned home. Such help is especially important when a patient in the hospital is just about to be discharged. As Fish⁷ put it:

"The emotionally ill person returning to his former environment does need added tolerance because his experiences have lowered his self-confidence and increased his sensitivity to real or imagined rejection by others; he needs support and encouragement. But he needs to have this support without coddling or overprotection. It is not an easy balance to achieve and it may be that the family itself has its own emotional needs and weaknesses that may have had their part in precipitating the emotional illness.

"Successful recovery and resumption of place in society can result if tolerance, support, and help in vocational placement, on the part of family and community, can supplement the returning confidence and basic personal assets of the patient."

Richter¹⁷ found that however long the patient had been in the hospital before returning home, his chances of staying home were much better if his family is stable. Unfortunately, the family often seems to promote the patient's disease. In this respect, Haley¹⁰ reports that (speaking of children with schizophrenia) many investigators believe:

"That schizophrenia in the child serves a supportive or homeostatic function in this . . . family. If the patient behaves more 'normally', the parents become disturbed or a sibling may begin to develop symptoms. The continual conflict between the parents may also come out more openly and separation may be threatened. When the patient is ill, the family is drawn together by this burden they share in common."

Rosen and Friedman¹⁸ say that:

"The psychotic, by virtue of his helplessness, is more dependent than the normal or neurotic upon the people with whom he deals and the environment in which he finds himself. It is further understandable if we consider the fact that the patient's recent and remote past have been characterized by environmental inconsistencies. As a consequence, a consistent environment is one major therapeutic resource..."

The Doctor Guides the Community

The physician, therefore, examines carefully his community's prejudices and attitudes toward mental illness and the mentally ill. After all, human functions are intimately bound with the society and the community in which they occur. The doctor and his medicine can be no exception. Therefore, Chernewski³ says:

"Medicine is a part of culture, for it consists of a vast complex of knowledge, beliefs, techniques, roles, norms, values, ideologies, attitudes, customs, rituals and symbols that interlock to form a mutually reinforcing and supporting system termed an 'institution'. Medicine as an institution is integrated with other major institutional complexes—government, religion, the family, art, the economy, education—into a functioning whole which is culture."

Fortunately, a physician is usually an important community leader. He helps to determine its ideals and to realize those ideals. We therefore naturally expect him to assume leadership in public education programs, to reduce the stigma of mental illness, and otherwise to make the community more receptive to the returning state hospital patient. As Farnsworth⁵ says:

"Mental health education should instill in people a deep respect for all human beings, regardless of origin, religion, race, present status, or behavior at the moment. People prefer being treated as individuals, with dignity and respect. They do not like being treated impersonally. Feelings and sentiments are realities and must be dealt with as such, regardless of whether or not we share them. Human behavior has its causes, both rational and irrational, and it can be understood if enough facts are known. Effective communication at all levels is fundamental for good human relations. The development of desirable values in a community are supported by example as well as by precept, by the truly influential people in the community."

In such community efforts, family physicians often establish working arrangements with community organizations and facilities that share the responsibility for maintaining the discharged patient. For example, community social agencies give the patient and his family money or help him find a job. Industrialists and businessmen work with the family physician to give the patient a suitable job. Churches and fraternal organizations help the physician restore in the patient a feeling of belonging in the community. Describing how the visiting nurse helps discharged patients in Allegheny County, Pennsylvania, Fleming *et al*⁸ says:

"The nurse's home visits follow a general pattern. The patient is encouraged to say how things are going. The nurse might then ask the patient if she has seen her family physician. If she had not, the nurse encouraged her to do so. (Most of these patients had been referred back to their family physicians by the hospital.) If the patient was on any of the psychotropic drugs, the nurse checked the dosage and observed for drug reactions. The nurse was always on the alert for evidence that might reveal the course of an underlying mental illness.

"If it seemed to the nurse that the patient was getting worse, she would get in touch with the family physician. In several instances the nurse and the physician worked out a plan to coordinate their help to the patient."

After surveying the psychiatric facilities in the State of Connecticut, Coleman and Errera⁴ reported:

- "1. There would seem to be value in setting up a system for providing regular psychiatric consultation to interested general hospitals in localities where there are at present no psychiatrists in practice.
- "2. Some methods of providing psychiatric consultation for acute psychiatric problems might be considered. Such a service could be provided by the emergency service of general hospitals if they have or could arrange to obtain on-call psychiatric consultation."

After surveying psychiatric facilities in the State of Connecticut, Coleman and Errera⁴ reported:

"Of course, the family physician should always remember that the state mental hospital is itself a community resource with which he can work closely. For example, it can inform him of the therapies it used while the patient was in residence there."

When After-Care Begins

Now when should this after-care begin? Ideally, it should begin before the patient goes to the hospital even for the first time—even before anyone has any idea that the patient will, one day, become mentally ill. After all, even in our highly mobile age, the family physician is by tradition and almost by definition a birth-to-death kind of doctor. We expect him to give continuity to our medical care however often we may go for circumscribed therapies to the medical specialist.

We would, therefore, expect that a patient mentally ill for the first time would not come as a stranger to his family doctor, nor would his family be unknown to the doctor. We would expect patient, family, and physician to feel confident in one another. Such built-in feelings of confidence are important during these times of crisis.

As Fischer and Dlin⁶ say:

"In psychiatric emergencies the emotion of the

physician is involved to a significant and crucial degree. Objective handling is seldom the rule, and frequently he becomes emotionally involved. Because of this, management is uniquely complicated."

The confident physician is less likely than an uncertain one to commit a patient prematurely. Because many patients with dramatic psychiatric symptoms soon recover, delaying commitment a few days may obviate it entirely. Reviewing all patients admitted to the acute psychiatric service of a large municipal general hospital, Schopbach¹⁹ found:

"About half of the patients are admitted upon their own initiative or that of their relatives, half by referral from other physicians, and only a few by transfer from other hospitals. Commitment is only occasionally necessary during the early disturbed phase of an illness in order to retain the patient for necessary treatment. If a month of intensive study and treatment produced no beneficial change in a chronic schizophrenic patient, the family was usually more able to accept transfer to a state hospital for long term care. For some it becomes financially impossible to maintain a relative in a private hospital after the 30-day Blue Cross limit expires but the number so forced to transfer is very small; nearly all are improved enough by then to be transferred to an out-patient status."

If the patient, despite the office treatment by his family physician and a psychiatrist must go to the state hospital for comparatively prolonged treatment, the family physician can very usefully induce the patient to enter the state hospital voluntarily. The British Mental Health Act of 1959—which we mentioned before—encourages voluntary admission as much superior to commitment. As Hare¹¹ says:

"The aim of the Mental Health Act—is to insure that psychiatric treatment is readily available to all who need it and that it shall, as far as possible, be without legal formality. It is hoped that this approach will result in a minimum of compulsory detention because patients will be encouraged to seek treatment in the earliest stages of their illness . . . the new Act . . . allows the admission (and discharge) of mentally disordered patients to any hospital without formality (informal admission) . . . a patient can be informally

admitted to a hospital provided he does not positively object; thus confused, stuporose, incoherent, or even unconscious patients . . . may now be admitted informally."

Once it has been decided that the patient must go to the state hospital, the family physician ideally gets in touch with the hospital staff to prepare them for the patient's coming, and to give such information as they might require to make an early diagnosis and to start therapy as soon as the patient arrives. The family physician also helps the family to cooperate with the hospital staff at time of admission, during the hospital stay, and when discharge is being planned. He keeps himself informed of hospital findings, and by regularly visiting the patient himself, reassures him he will be on hand when the patient leaves the hospital.

It makes real sense that the family physician keep in close touch with patient and family while the patient is in the hospital, for patients do not remain in state hospitals for many years these days. In fact, from 75 to 90 per cent of all patients admitted to state hospitals now are discharged within the first nine months. And at the moment of discharge, they need their family physician.

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Dr. Annis

Dr. Edward R. Annis, President Elect of the American Medical Association; and Dr. Benjamin H. Balser, Assistant Professor of Psychiatry at Columbia University and Director of Psychiatric Research and Training, St. Luke's Hospital, New York, will speak at an evening meeting in Johnson Gymnasium at the University of New Mexico on April 24.

Dr. Annis will discuss Medicare, and Dr. Balser will talk on "Problems of Adolescence".

The meeting, open to the public, is being held in conjunction with the 81st annual meeting of the New Mexico Medical Society in Albuquerque, April 24-26.

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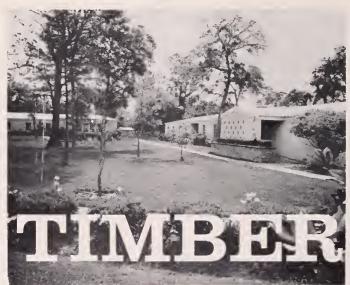
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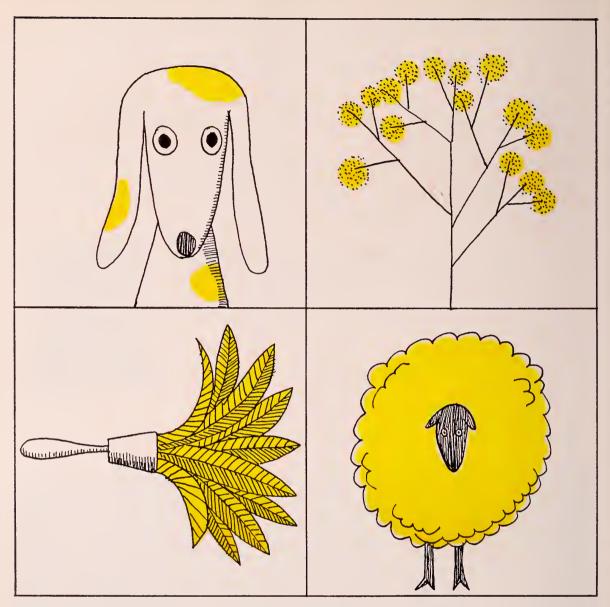
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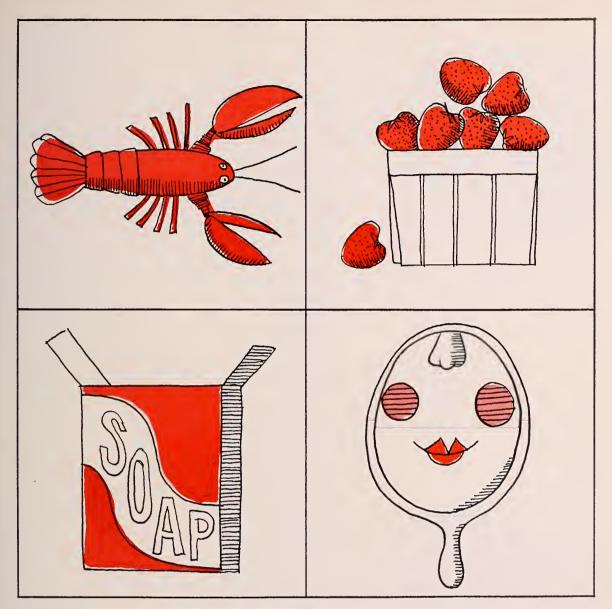
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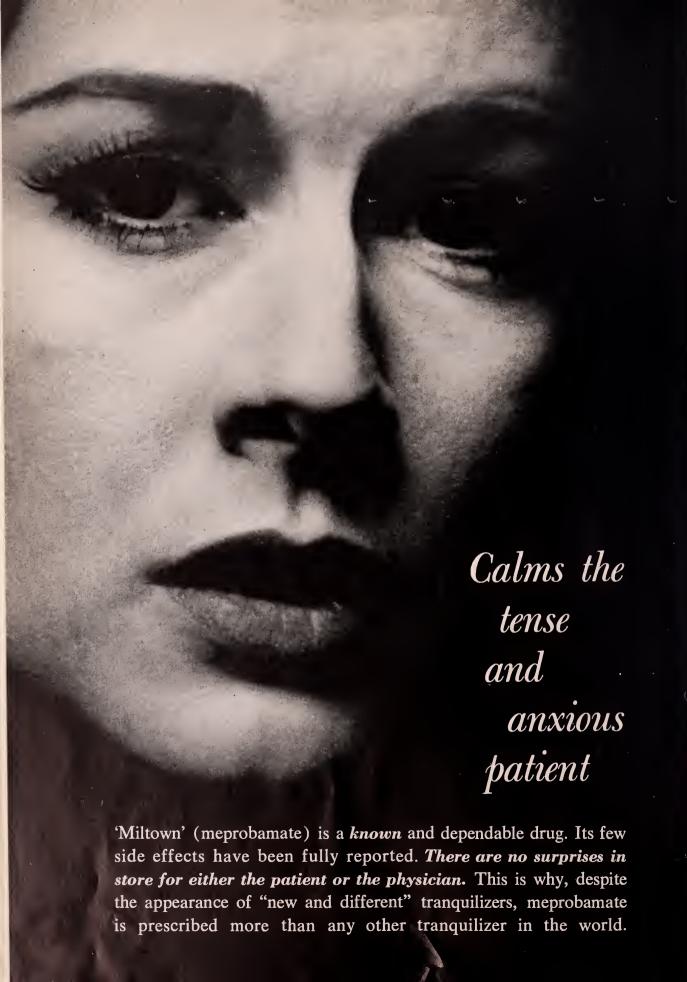
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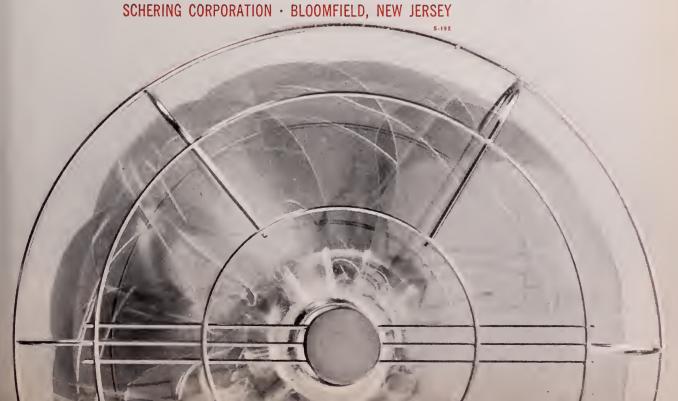
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Clinical Studies of Arteriosclerosis in Persons Living at High Altitude

JOHN F. CURRIN, M. D., Flagstaff, Arizona

Northern Arizona is a geographic area of which the predominant feature is a high plateau with an elevation of 6800-7100 feet. Mountain peaks in this area rise to 12,690 feet. In and about the city of Flagstaff, in the center of this area. 30,000¹ people reside. Hultgren and Lundberg² in their studies defined "high altitude" as elevations of 7000 feet and over; therefore, it can be stated that many of these 30,000 persons reside in an area of reduced oxygen tension.

Inspired oxygen tension at sea level is about 150 mm Hg:³ at 5000 feet it falls to 130 mm Hg; at Flagstaff it has fallen to 119 mm Hg.⁴ The barometric pressure at this altitude is 575 mm Hg compared with 760 mm Hg at sea level.

Many patients are admitted to the Flagstaff Hospital each year as a result of arteriosclerosis and its complications. The author therefore decided to investigate these patients to determine if their arteriosclerosis differed from that usually observed at sea level or was modified by altitude.

The Flagstaff Hospital is a community hospital without special research facilities or a radio-isotope laboratory. Therefore the studies on these patients were kept at a clinical level. Cholesterol was determined by the method of Ferro and Ham; beta-lipoprotein by the method of Omni-Tech: uric acid by the technique of Kern and Stransky and hematocrit by the usual methods. Hematocrit and uric acid determinations were secured on these patients to observe the effect of altitude and low oxygen tension on the red cell mass and a by-product of nucleic acid metabolism, uric acid.

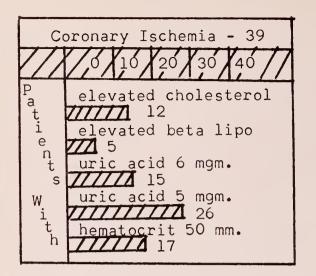
Previous studies by Duncan,⁸ Backer.⁹ Lovering and Longobordi¹⁰ have shown that arteriosclerosis is often related to elevated blood uric acid. Burch and DiPasquale¹¹ have noted that the hematocrit level was elevated in a large number of their patients suffering myocardial infarction. The author therefore sought to determine if arteriosclerosis and its complications observed in people living at "high altitude" was related to increased red cell mass and elevation of uric acid rather than to demonstrable lipid abnormality.

Ninety consecutive patients admitted to the Flagstaff Hospital for the complications of arteriosclerosis were studied. Of this group, twenty-two were women and sixty-eight were men. The youngest was 35 years of age and the oldest was 92. The patients were arbitrarily divided into five groups:

- A. Coronary Ischemia those patients admitted for coronary thromboses or acute coronary insufficiency.
- B. Arteriosclerotic Heart Disease those patients admitted for cardiac decompensation, cardiac arrhythmia or whose arteriosclerotic heart disease was a major complication of some other illness.
- C. Cerebral arteriosclerosis either cerebral thromboses or hemorrhage.
 - D. Renal disease due to arteriosclerosis.
 - E. Ischemic peripheral vascular disease.

Coronary Ischemia

Thirty-nine patients were admitted to the hospital because of chest pain, felt by the patient's physician to be the result of myocardial ischemia.



Of these 39 patients, eight were women and 31 were men. The youngest was 40 years of age and the oldest was 89. One patient received a myocardial infarction as a result of a severe blow to the sternum by the steering wheel of his car when he was involved in a traffic accident. He was included in this group since the author was measuring consecutive myocardial infarctions admitted to the hospital.

The cholesterol was 250 nigm or above in 12 of these patients. One of the men had a milky serum, cholesterol of 688 mgm and a total blood lipid of 1800 mgm. He was therefore classified as having essential hyperlipemia. Two men and two women were known diabetics. One woman had a diabetic glucose tolerance test. Of the 39 patients with coronary ischemia, five had an elevated beta-lipoprotein. In all cases this was associated with a blood cholesterol of 250 mgm or above.

A blood hematocrit of 50 mm or above was found in 17 patients. The highest hematocrit observed in this group was 62 mm. Of these patients, 14 were men and three were women. All the women had resided at "high altitude" for many years. Fourteen of the 17 men had resided in Northern Arizona for many years. Since the platelet counts of these patients were normal, it was felt that they did not have polycythemia vera.

The uric acid was 6 mgm/100cc or above in 15 patients, all men. The hematocrit and uric acid were both elevated in six instances. If a uric acid level of 5 mgm/100cc were considered elevated, then the blood uric acid was increased in a total of 26 people of whom four were females and 21

males. The simultaneous elevation of both uric acid and hematocrit then occurred 14 times; 12 men and two women. A history of gout could not be elicited in any of these individuals.

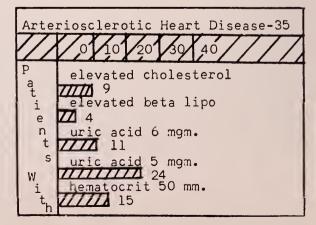
It is interesting to note that two of the patients were Indians, one a Hopi and one a Navajo. Coronary artery disease is alleged to be most unusual in the American Indian. The Hopi had an elevated blood hematocrit while the remainder of his studies were normal. The Navajo showed elevated hematocrit, uric acid, cholesterol and beta-lipoprotein. The Navajo had lived off the reservation for many years. The Hopi had divided his time between the reservation and the "White Man's World".

Arteriosclerotic Heart Disease

Patients categorized in this classification were admitted either with cardiac decompensation or arrhythmia as a result of arteriosclerotic heart disease, or their heart disease was a major complication of some other illness which required hospitalization. There was a total of 35 patients in this group of whom 27 were men and eight were women. The youngest was 35 and the oldest 82 years of age. Two people had known diabetes and one had chronic lymphatic leukemia.

A cholesterol of 250 mgm or higher was present in five men and four women. As we have noted two of the women were known diabetics. The highest cholesterol in this group was 475 mgm noted in one of the diabetic patients. The beta-lipoprotein was elevated in four persons. In three of these instances the cholesterol also was above normal values.

The determination of the blood hematocrit showed it to be 50 mm or more in a total of 15



	Total Patients Studied - 90
	//0/10/20/30/40/50/60/70/60/90/
P a t i e n t	elevated cholesterol 11
W i t h	hematocrit 50 mm. or above 7/////// 37 hematocrit 50 mm. and uric acid 6 mgm. 1////// 17 hematocrit 50 mm. and uric acid 5 mgm. 28

patients, 13 men and two women; 71 mm was the highest value noted. A uric acid of 6 mgm/100cc or higher was found in 11 patients, all men. A level of uric acid 5 mgm/100cc or more was present in a total of 24 persons, one of whom was a woman who had lymphatic leukemia. Evidence of an elevation of the hematocrit and a uric acid of 6 mgm or more was present in seven patients; an elevated hematocrit and uric acid of 5 mgm or more was present in 12 patients, all males. One of the patients with an elevated uric acid was known to have gout for many years. However none of the remaining patients gave a history suggestive of gout.

Cerebral Arteriosclerosis

Twelve patients were admitted for the cerebro-vascular complications of arteriosclerosis. These included one instance of internal carotid artery thrombosis; one case of posterior inferior cerebellar artery thrombosis; two of cerebral hemorrhage and the remainder of thromboses of the middle cerebral artery or its branches. The cholesterol was above 250 mgm in six patients; five women and one man. The beta-lipoproteins were normal in all but one patient studied in this group. The cholesterol was elevated in this patient also.

The hematocrit was above 50 mm in three patients. The uric acid was above 6 mgm/100cc in five patients; four men and one woman, and above 5 mgm/100cc in seven patients; six men and one woman. One patient, a woman, died at age 52 of an internal carotid artery thrombosis. She had previously had a middle cerebral artery

thrombosis on the opposite side, thromboses of both iliac arteries and a myocardial infarction. She had undergone a hysterectomy at an early age. Her hematocrit, cholesterol and uric acid were all elevated.

Renal Disease Due to Arteriosclerosis

Two patients, one male and one female, were admitted to the hospital for renal difficulties, proven to be the result of arteriosclerotic stenoses of a renal artery. In both these patients the uric acid was above 6 mgm/100cc. The cholesterol was elevated in the male. The remainder of their studies were normal.

Arteriosclerotic Peripheral Vascular Disease

Two patients were admitted for treatment of common femoral artery thrombosis by the surgical placement of a bypass graft. Both patients were men. One had an elevated hematocrit, uric acid, cholesterol and beta-lipoprotein. The other man evidenced an elevation of cholesterol, uric acid and hematocrit.

Discussion

Ninety consecutive patients seen at the Flagstaff Hospital for the complications of arteriosclerosis were studied by the author. Thirty-nine were treated for coronary ischemia, 35 for arteriosclerotic heart disease, 12 for cerebrovascular difficulties, two for renal artery stenoses and two for peripheral vascular disease. An elevation of the blood cholesterol above 250 mgm was observed in 29 patients or 32 per cent. This number was comprised of 16 men and 13 women.

There were four known diabetics in this group and one patient with a diabetic glucose tolerance test. One additional patient had essential hyperlipemia. If these patients are subtracted because their elevated cholesterol may be the result of another disease process than arteriosclerosis, then 25.5 per cent of the patients developing arteriosclerosis at "high altitude" have an elevated blood cholesterol.

The beta-lipoprotein was elevated in 11 patients or 12 per cent of the patients studied. In only one instance was the beta-lipoprotein elevated and the cholesterol normal. Therefore the measurement of beta-lipoprotein by the method employed by the author would appear to have no advantage over measuring the blood cholesterol in the clinical evaluation of these patients.

The blood uric acid was elevated to 6 mgm/100cc or above in 37 patients; 34 men and three women, or 41 per cent. It was elevated 5 mgm/100cc or above in 63 patients or 70 per cent. This group was composed of 54 men and nine women. The hematocrit was 50 mm or above in 37 patients, 32 men and five women or 35 per cent of the patients. An elevated hematocrit and a uric acid of 6 mgm/100cc or more was present on 17 occasions; 16 men and one woman. An elevated hematocrit and uric acid of 5 mgm/100cc or more was present in 28 of the patients of whom two were women and 26 were men. This was approximately 30 per cent of the patients studied.

As can be seen from the above, demonstrable lipid abnormalities were almost evenly divided between men and women. However there was a marked predilection for elevated uric acid and/or hematocrit to occur in men. One wonders if menstrual flow aided the women in preventing the rise of the hematocrit and uric acid, as was noted in the men.

Initially, the author was surprised that there were not more patients who revealed an elevation of blood hematocrit considering the altitude at which they resided. However, the work of Lertzman, Israels and Cherniak¹³ with isotope techniques has shown that the red cell mass may be considerably elevated before it is reflected in the blood hematocrit. Many of the patients with elevated uric acid levels and normal hematocrits

when studied by this technique may reveal an increased red cell mass. It is our hope to be able to do this in the near future.

For many years it has ben known that gout (elevated uric acid) is associated with a high incidence of arteriosclerosis. S. 9. 10 Becker states that "gout is to the arteries what rheumatic fever is to the heart". This would seem to be borne out in this study of patients residing at high altitude. More than twice as many people demonstrated elevation of their uric acid than showed lipid abnormalities. Although the incidence of lipid abnormalities was about evenly divided between the sexes there was a marked predilection for the male patients at this altitude to show elevation of the uric acid with or without an elevation of hematocrit.

Conclusions

Ninety patients suffering from the complications of arteriosclerosis were studied. More than twice the number of patients revealed elevation of uric acid as demonstrated lipid abnormalities. The lipid abnormalities shown were about evenly divided between men and women. There was a marked increased incidence of hyperuricemia in the male patients studied.

110 W. Birch Ave.

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Vaginal Hysterectomy Complications

JACK L. HARGAN, M.D., El Paso

The increasing popularity of the vaginal route for hysterectomy necessitates a critical study of the complications. This will lead to a decrease in mortality and morbidity as well as expense to the patient.

A three year review of complications of vaginal hysterectomies is presented from the Department of Gynecology of the University of Texas Postgraduate School of Medicine, Houston, Texas, which is composed of St. Luke's, St. Joseph's and M. D. Anderson Tumor and Cancer Clinic respectively.

The history of 270 patients reviewed from St. Luke's Hospital, 203 from St. Joseph's Hospital and 87 from M. D. Anderson Hospital. A total of 560 patients. Of this number 69.4 per cent were performed by gynecologists, 19.6 per cent by the house staff, 6.5 per cent by general surgeons and 4.4 per cent by general practitioners.

Complications Encountered

Table I indicates the various complications encountered and the number of times these complications arose. It is noted that the greatest number of complications presented are those in which the temperature of the patient exceeded 100.4 degrees for two days. This temperature base line was used primarily because other similar studies have used this figure, however, this is more of an obstetrical base line than a surgical one. In retrospect, a more accurate base line would be a temperature of 101 degrees for two consecutive days. It is noted that infectious complications far exceed all the rest combined.

Urinary tract complications predominate with 63 patients, followed by abscesses of which there were 57. Four of the abscesses were further complicated, three by ileus and one by sigmoid resection. The next largest group consisted of ten postoperative hemorrhages. Eight were from the vaginal cuff and two were intra-abdominal.

Visceral perforation was present in four cases, one ileum and three of the bladder.

There were two deaths in this series. One may not be due to or classified as vaginal hysterectomy complication. This was a 43 year old lady who underwent a vaginal hysterectomy, right salpingo-oophorectomy and anterior colporrhaphy for metrorrhagia and leiomyomata. Her postoperative course was uneventful and she was dismissed on the eighth postoperative day. She returned two months later with a high fever and in a comatose state and expired shortly after hospital admission.

Table 1

Vaginal Hysterectomy Complications

Temperature over 100.4 two days	.336
Temperature over 100.4 two days without diagnosis.	
Urinary tract infection	63
Cuff abscesses	42
Pelvic abscesses	9
Pelvic abscess with ilius	. 3
Pelvic abscess followed by sigmoid resection	. 1
Postoperative hemorrhage	10
Perineal abscess	2
Atelectasis	
Ureteral-vaginal fistula	1
Peri-rectal hematoma with cellulitis	. 1
Perforation of ileum	. 1
Perforation of bladder	3
Bladder neck obstruction	1
Aurecular fibrillation	1
Hydro-ureter with hydronephrosis	2
Expired	2

Total 359 64.1 Per Cent

Autopsy revealed ruptured appendix with peritonitis. The other death was an 83 year old white female who had a vaginal hysterectomy with anterior and posterior colporrhaphy, for cystocele, rectocele and uterine descensus. She also had a saphenous vein ligation and was dismissed on the 24th postoperative day. Surgery was complicated by a perineal abscess. She returned seven weeks postoperatively and expired. Her B.U.N. on return admission was 34 mgm. per cent and increased to 124 mgm. per cent. Cause of death was established as renal failure, electrolyte imbalance and adrenal failure.

The average length stay in hospital of these patients is represented in Table 2. The average stay of the vaginal hysterectomy alone was 7.8 days. Vaginal hysterectomy with anterior and posterior repair was 10.1 days and the radical hysterectomies, of which there were nine in this series, was 23.8 days. The postoperative complication of the 16th day patient was a perineal abscess. The postoperative complication of the 54th day patient was uretero-vaginal fistula, urinary tract infection and pelvic abscess. The fistula necessitated reimplantation of the left ureter.

Table 2 Number Postoperative Days in Hospital

Vaginal hysterectomy	Shortest	Longest	Average
only	4	16	7.8
Vaginal hysterectomy			
with A-P repair	4	54	10.1
Radical hysterectomy	10	35	23.8

The number of patients receiving blood transfusions, either during surgery or immediately postoperatively, was higher than anticipated. A total number of 209 patients, or 37.5 per cent, received blood either during the procedure or immediately postoperatively. However, some of these may be contributed in part to an over zealous anesthesiologist, for it has been observed that the patient's postoperative hemoglobin is sometimes higher than the preoperative hemoglobin. With the steady increase in the incidence of serum hepatitis and blood transfusion deaths, the gynecologist is faced with an additional avenue of postoperative complications.

Indwelling Catheter

The question frequently arises as to how long a Foley catheter should be employed postoperatively. The magic number for some time has been five days. This affords sufficient time to give the bladder rest in order for it to regain its normal tone. This in turn decreases the complication of urinary retention. Table 3 indicates the per cent of patients with residual of more than 100cc of urine after the Foley catheter has been removed. Recently, there has been some suggestion that it is not necessary to leave the catheter in place longer than 24 hours, even if an anterior repair has been done.

Although the series of the indwelling catheter in place for one day is small, we do note that one half of these patients developed a urinary tract

Table 3
Foley Catheter in Bladder
Vaginal Hysterectomy with A-P Repair

Days In Place	Number Patients	Per Cent Urinary Tract Infection	Residual Urine Over 100cc
1	4	50%	0%
2	19	21%	52%
3	44	16%	33%
4	59	7%	49%
5	92	1.1%	32%
6	66	11%	45%
7	24	16%	33%

infection. Also, those patients in which the catheter was allowed to remain in place for two days showed a marked increase of residual urine to 52 per cent. Consequently, if the one day series had been greater, we would have seen a figure similar to the two day series. This study reconfirms the five day period for the indwelling catheter. The incidence of urinary tract infection was lowest with 1.1 per cent and residual urine over 100cc was the lowest with 32 per cent.

Infectious Complications

Table 4 indicates the number of infectious complications with a total of 336 or 93.6 per cent of all complications. In view of this high percentage more investigation of postoperative infections should be carried out. In order to ascertain if the type of procedure plays a part in infectious complications, refer to Table 5. Here is a breakdown of the various vaginal hysterectomy procedures with associated urinary tract infections, abscess formations and fever complications. The vaginal hysterectomy with anterior and posterior repair constitutes 70 per cent of the total. This is expected because of the high incidence of cystocele, rectocele and uterine descensus.

As expected, vaginal hysterectomy alone is complicated less frequently than when associated procedures are performed. Of course, there is the exception of the radical hysterectomy in which we would expect more complications. I believe this indicates that if pathogenic organisms are present, the decreased resistance of the host allows the organism to proliferate and develop into an infectious complication. With this thought in

Table 4
Temperature Over 100.4 for Two Days

Etiology unknown		2	16
Urinary tract infection .			63
Pelvic abscess			
Cuff abscess			42
Peri-rectal hematoma with cellul			1
Perineal abscess	00.00		I
Total 336	93.6%		

Table 5
Vaginal Procedures with Infectious Complications

	T	otal	Urinary Tract	Cuff	Pelvic	Temp. Over
	No.	%	Infection	Abscess	Abscess	100.4, 2 Days
Vag. hyst. only	53	9.4%	7.5%	7.5%	0	28.3%
Vag. hyst. posterior repair	42	7.5%	11.9%	14.0%	0	40.4%
Vag. hyst. anterior repair.	14	2.3%	14.2%	7.0%	0	35.7%
Vag. hyst. S-0	14	2.3%	14.2%	7.0%	7.0%	28.5%
Vag. hyst. A-P & S-O	22	3.9%	9.0%	9.0%	0	34.5%
Radical vag. hyst.	9	1.6%	22.2%	33.3%	11.1%	33.3%
Vag. hyst. with A-P vein stripping.	4	0.7%	25.0%	0	0	75.0%
Vag. hyst. A-P	404	72.0%	10.8%	5.1%	2.5%	40.8%
Total	560		11.2%	7.5%	1.6%	38.5%

mind, it would suggest more stringent vaginal preparation is in order. The problem of post-operative infection has been a concern to all gynecologists for quite some time. Each and every one has his own particular personal method of handling this problem.

A table was comprised with the hope that a definite combination of prophylactic medications would be an aid in decreasing this problem. Table 6 is such a combination of medications used. The headings along the side are medications used

vaginally the night before surgery. The headings at the top are prophylactic medications which are given beginning on the day of surgery or the first day postoperatively. The numbers in the table on the left denote the number of patients receiving the medication, while the numbers on the right denote the number of postoperative infections. It is noted that there is a multiplicity of techniques used.

The most prominent medications, both pre and postoperatively used have been prepared in Table 7. It is noted that there were 122 patients who

Table 6
Prophylactic Medications for Vaginal Hysterectomies with Corresponding Morbidity

Rx Prior Surgery	No Rx P. O.	Combi- otic	Kynex	Achro- mycin	Gan- trisin	Fura- dantin	Tetra- cycline	Peni- cillin	Chloro- mycetin	Declo- mycin
None	122-71	40-17	24-11	35-24	29-11	9-2	7-3	11-10	17-11	7-5
Phisohex Douche	38-22	7-7	0-0	1-0	2-2	5-0	8-6	0	5-4	0
Zephiran Douche	31-14	8-2	1-0	3-2	4-1	2-1	1-0	1-0	1-0	0
KMNO4 Douche	11-7	4-3	1-1	2-2	0	3-2	0	1-0	1-0	0
Saline Douche	4-3	3-2	2-2	3-0	0	1-0	0	1-0	0	1-1
Boric Acid Douche	5-4	2-2	2-0	4-1	4-2	0	0	1-0	1-0	0
Lysol Douche	1-0	2-1	0	0	1-0	0	0	0	0	0
Furacin Suppository	6-4	2-3	2-0	4-1	4-1	2-2	0	1-1	1-1	0
Terramycin Suppository	18-7	6-2	3-2	6-2	8-6	0	0	0	2-0	1-1
Phisohex & Furasin Suppository	4-1	0	3-1	1-0	3-1	1-0	0	0	1-1	0
Zephiran & Furasin Suppository	2-1	0	1-1	0	0	0	0	0	0	0
Oral or I. M. Rx	0	2-1	0	3-3	2-1	0	0	2-0	1-0	0
Total	244-134	76-40	36-18	59-36	54-27	21-7	16-9	18-13	28-17	9-7

NOTE: Left number denotes number of patients. Right number denotes morbidity.

Table 7

Most Commonly Used Medications

	Total Number	Number Compli- cations	Per Cent
No previous Rx or post-			
operative prophylactic Rx	122	71	58.0%
Number with prior Rx	259	140	54.0%
Prophylactic Rx postoperative	318	174	53.0%
Prior Rx & post-			
operative prophylactic	138	80	57.0%
Prophylactic combiotic	76	40	52.0%
Zephiran douche	53	20	37.0%
Phisohex douche	66	39	59.0%
Furacin suppository	20	13	65.0%
Terramycin suppository	43	20	46.0%
Oral Rx, pre- & post-			
operative prophylactic	10	4	40.0%
Kynex	36	18	50.0%

received nothing until complications occurred, then medication was given. Of this group there is a morbidity of 58 per cent. Those who received vaginal preparation prior to surgery represent a 54 per cent morbidity and those who received prophylactic medications both pre and postoperatively was 53 per cent. Combiotic prophylactically 52 per cent. We can see there is no appreciable difference in any one of the preparations used, however, the zephiran douche was lowest with 37 per cent. This then implies that our present methods of preparing a patient for vaginal surgery are far from satisfactory.

In order to study this problem, cultures from infected areas and abscess formations were investigated as noted in Table 8. In the urinary tract cultures, E. coli was predominant in 42.5 per cent, the proteus group 15 per cent, and the remainder was fairly equally distributed. The abscess formation areas cultured again revealed a greater number of E. coli and proteus group. However, also in this series streptococcus fecalis and alpha hemalytic streptococcus have a fairly high percentage.

It should be noted that almost all the organisms cultured were fecal contaminants. The problem here, then, is one of preventing fecal contamination in the operative field. It may be necessary to place the patient on vaginal medication several days prior to surgery and even obtain a vaginal vault culture and sensitivity and adjust the medication accordingly. A more stringent perineal and vaginal preoperative preparation should be given. It is imperative to obtain cultures at any time an infection appears. The postoperative nursing care could also be increased, such as daily cleansing of perineal and anal areas.

Table 8
Cultures

Organism	Urinary Tract Infection	Abscess
E. coli	42.5%	24.0%
Proteus group	15.0%	28.0%
Strept fecalis	7.5%	12.0%
Aerobacter aerogenes	7.5%	0.0%
Para colon	5.0%	4.0%
Alpha hemolytic strept	2.5%	16.0%
Klebsiella	2.5%	0.0%
Staphylococcus	5.0%	0.0%
Gamma strept	2.5%	0.0%
Micrococcus	5.0%	12.0%
Negative	5.0%	4.0%

The preoperative medication used for vaginal preparation at M. D. Anderson was Phisohex douching the night before surgery. However, with the introduction of the Betadine solution, a study was made of this preparation. The patients received a Betadine douche the night before surgery, a culture was taken prior to surgery preparation, they then were prepared with Betadine and another culture obtained just before the procedure began. All organisms listed in Table 8 were found with the first culture. Those found on the second culture are noted in Table 9. In Table 9, we see

Table 9

Betadine Study

77.8% Growth Inhibition

Organism	Neo- mycin	Poly- myxin B	Chloro- mycetin	Fura- dantin	Strepto- mycin
E. coli	+	+	+	+	+
Proteus	+	+	0	0	+
Micrococcus	+	+	+	+	+
Staph, albus	0	0	+	0	0
Strept fecalis	+	0	+	+	+

that there are five of the previous organisms which maintained growth throughout the Betadine preparation. It was also found that there was a decrease in number. Growth inhibition of organisms was 77.8 per cent. Sensitivity tests indicate chloromycetin and streptomycin to be effective on most of the organisms but neomycin and polymixin were the most effective on E. coli and proteus.

Although Betadine does show some encouragement in decreasing the postoperative infections morbidity, more careful and selective preparations of the patients as previously suggested would contribute greatly.

Summary and Conclusions

1. There were 560 vaginal hysterectomies studied and the complications occurring were evaluated. 2. The leading complications were post-

operative infection, of which 216 with temperature over 100.4 for two days, without diagnosis for cause of the fever. The most likely and widely accepted reasoning being that of vaginal cuff inflammation, cellulitis and/or resorption and breakdown of old blood in both anterior and posterior repair areas. These are the sites where the origin of vaginal cuff abscesses would form. However, in many instances it is felt that not enough inflammation is present to form such an abscess and cellulitis is present to a certain degree, thus causing the increase in temperature. Most of these respond adequately with proper antibiotics. 3. The two deaths occurring were discussed. 4. Hospital stay for vaginal hysterectomy patients averaged 7.8 days for vaginal hysterectomy alone, 10.1 days for vaginal hysterectomy with anterior and posterior repair, 23.8 days for radical vaginal hysterectomies. 5. It was confirmed that the indwelling catheter should remain in place five days postoperatively in order to obtain the best results. 6. The use of zephiran douche offered the lowest number of complications, but still had a 37 per cent morbidity. 7. Fecal contaminants is the main cause of infection regardless of location, of which E. coli and proteus are the leading organisms. 8. Betadine douche and vaginal preparation may prove effective, as it gave 77.8 per cent growth inhibition.

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COMING MEETINGS

New Mexico Chapter, AAGP, Ruidoso Summer Clinic, Ruidoso, N. M., July 15-18, 1963.

University of Colorado School of Medicine, 6th Annual Postgraduate Course in Pediatrics, Stanley Hotel, Estes Park, Colo., Aug. 5-9, 1963.

American Academy of Physical Medicine and Rehabilitation, Annual Meeting, Sheraton-Dallas Hotel, Dallas, Aug. 26, 1963.

Western Association of Railway Surgeons, annual meeting, Continental Wayside Inn, Paso Robles, Calif., Sept. 26-28, 1963.

American Cancer Society, 1963 Scientific Session, A Conference on Unusual Forms and Aspects of Cancer in Man, Biltmore Hotel, New York, Oct. 21, 22, 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southwestern Medical Association, 45th Annual Meeting, Holiday Inn, El Paso, Nov. 14-16, 1963.

BOOKS

Synopsis of Genitourinary Disease

by Dodson-Hill

Seventh Edition, 1962, The C. V. Mosby Company

As with previous editions, this synopsis has a good format and is easy to use. It serves as a handy reference for the general practitioner. For the man interested in taking State Boards it will be invaluable as it gives a complete review in the field of Urology. This synopsis deserves to be on the shelf of the practicing Urologist as it gives a handy point of reference without wading through pages of statistics, etc. The illustrations are well chosen.

The fault in this book is one of omission, as it does not include a discussion of any adrenal pathology, nor does it include reno-vascular hypertension or cystoceles. Outside of this, the field of Urology is well covered and this synopsis should be as popular as were previous editions.

S. Heinemann, M.D. El Paso

Use of a Liquid Formula

in Overweight Geriatric Patients

BENNETT W. BILLOW, M. D., New York

"Obesity may well be called the number one nutritional problem in the United States," according to Tullis and Allen.¹

The management of obesity has been referred to by Roberts as "a great enigma and challenge to practicing physicians".²

If those statements are true, and few would deny that they are, the control of overweight remains an unsolved problem. As such, it deserves the attention of the medical profession as a danger to the health and happiness of those it serves.

In an effort to explore the usefulness of liquid dietaries in controlling weight, we elected to try a variety of methods in a group of elderly patients. The product used was Metrecal liquid formula. Several investigators have found this dietary product to be of value in weight reduction programs. 1-2-3-4 It appeared worthwhile to study how it might be utilized to help solve America's "number one nutritional problem".

Procedure

Fifty geriatric patients were studied by our group for a period of six months to one year. These patients were of both sexes, and they ranged from 61 to 73 years.

Patients were studied from a minimum of 23 weeks to a maximum of 48 weeks. All of these patients have had a history of chronic obesity for many years. Some have made attempts to reduce, others haven't. However, with the advent of pathologic processes, it became imperative that these patients lose weight. Failure to do so would have further jeopardized their already failing health.

The disadvantages and dangers of the use of anorexigenic drugs are too well known to merit extensive discussion. Practically all of them had side reactions and at times allergic manifestations. For this reason it was decided to try Metrecal. Most of these patients were residents of nursing homes. Some 20 of them were visited in their homes, and a few came to our offices.

Theoretically it is possible to lay down a set of rules for obese patients. However, from a practical viewpoint, both patient and physician are beset by unknown factors. They are the psychology of the patient, morbid process involved, severity of illness, facilities on hand for administering diet, etc. Taking these facts into consideration, we decided to "tailor the drug to fit the patient."

We finally arrived at the following disposition of cases:

- 1. A group of patients was given Metrecal liquid formula four times daily without supplementary food for a period of seven to 14 days. After this time, having attained psychological impetus for continued weight loss, solid foods in forms of vegetables and meat (500-800 calories) were added. There were 11 such patients. However, this method was not feasible in most of our patients.
- 2. A second group of patients was given Metrecal liquid formula only for a maximum of seven days. After this, solid foods, including meats and vegetables (500-800 calories) were added. There were 14 patients in this category.
- 3. Another group contained the recalcitrant type of individual who ran the gamut of drugs, threats, cajolery, etc. These patients were placed on the liquid formula on alternate days. That is, one day four glasses of formula, second day a diet of 1200-1800 calories. They were 17 in number.
- 4. A final group consisted of eight patients who took a minimum of two to three glasses of the

TABLE I

Patient	Sex	Age	Duration in Weeks	Weight Loss	Average Weekly Los
P. A.	M	66	33	17	I/a
B. K.	F	63	23	14	1/2
R. S.	F	60	36	29	3/4
S. J.	\mathbf{M}	61	40	27	3/4
C. C.	M	69	30	22	3/4
B. H. jr	M	65	34	35	1
H. E.	F	63	26	18	3/4 1/2
M. S.	F	68	44	24	1/2
M. B.	M	67	30	173/4	1/2 1/2
J. R.	M	61	38	22	1/2
J. L.	F M	62	40	32	3/4
B. S. P. S.	F	63 67	36	$\frac{14}{20}$	1/ ₂ 3/ ₄
M. J.	r F	64	28 47	$\frac{20}{26}$	3/4 1/ ₂
T. H.	F	73	26	$\frac{26}{28\frac{1}{2}}$	1 72
C. P.	M	67	28	$\frac{2672}{21}$	3/4
U. T.	F	62	36	$\frac{21}{26}$	3/ ₄
C. O.	F	66	32	27	3/4
N. D.	F	64	28	38	$1\frac{74}{1/4}$
H. M.	F	67	30	24	3/4
B. L.	$\hat{\mathbf{M}}$	70	26	<u>19</u>	3/4
S. P.	F	63	34	$29\frac{1}{2}$	3/4
L. P.	M	73	45	25	$\frac{1}{2}$
K. M.	M	68	35	18	$\overline{1/2}$
R. D.	M	67	36	243/4	3/4
W. S.	M	71	40	27	3/4
B. K. jr	M	63	34	23	3/4
L. K.	M	64	28	$25\frac{1}{2}$	1
S.S.	F	66	24	29	1 ¹ / ₄
B. D.	F	70	40	39	1
A. V.	F	68	42	$40\frac{1}{2}$	1
G. S.	F	61	24	13	I/2 I/2
T. H.	M	62	27	11	1/2
L. O. D. U.	M F	62 63	30	28	1
N. T.	F	67	38 34	$\frac{291}{2}$	3/4
L. B.	F	72	38	33 34	1 1
P. F.	M	73	26	30	1
M. G.	M	67	30	24	3/4
N. D.	F	62	27	$\frac{24}{24}$	1 74
N. F.	F	61	36	343/4	1
J. M.	M	62	30	41	1 1/4
Ĵ. К.	M	64	40	31	3/4
J. D.	F	61	38	30	3/4
K. C.	F	62	24	22	1
M. W.	F	63	26	$20\frac{1}{2}$	3/4 1 ¹ /4
G. B.	M	60	28	33	$1\frac{i}{4}$
T. M.	F	63	30	26	3/4
J. J.	F	69	48	23	1/2
S. E.	F	68	24	18	3/4
			1047	1000	
			1647	1288	40

liquid formula from the very start in addition to their one big meal daily containing 600-1000 calories.

We arrived at this classification after trying many combinations. It is well known that in the beginning of a dietary regimen, weight loss may be easily attained; but, after a while patients lose incentive and they revert to their former eating habits and regain their weight. This didn't happen with the methods employed in this study.

Results

Perusal of Table I shows that even after lengthy follow-up, our patients' loss of weight was a mini-

TABLE II

" D' " " CD "

Diagnostic Distribution of Patients	
1. Simple Obesity	8
2. Chronic Refractory Obesity	
(unable to tolerate anorexigenic drugs).	8
3. Hypertension	.13
4. Coronary Artery Disease	. 8
5. Arteriosclerotic Heart Disease with Failure	. 9
6. Diabetes Mellitus	4

mum of 11 pounds and a maximum of 41 pounds during a period of 23 to 48 weeks.

The average duration of dieting was 33 weeks, and the average weight loss was 26 pounds. This amounts to 0.8 pounds per week. This is considerably less than that reported by Antos, whose observations continued for only 12 days. Considering the length of time over which weight loss was maintained, however, this is a significant accomplishment.

Laboratory studies performed were electrocardiogram, urine analysis, complete blood count, blood calcium, sodium and potassium. All were found to be within normal limits.

Reduction of food intake was difficult in the beginning for many patients, but after a few days there were few complaints of hunger. Most of the patients found the liquid formula to be a relatively easy way to lose weight.

We found a definite improvement in the disease states that existed. Our diagnostic distribution of patients is noted in Table II. It should be noted that no difficulty was encountered by our diabetic patients in maintaining control of blood sugar levels.

Conclusion

Flexibility is important in any weight control program. Different patients adjust better to different approaches. We have attempted to describe how a liquid formula, used in a variety of ways, apparently helped solve the problem of obesity for 50 geriatric patients.

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 Kreinin, S.: The Use of a Formula Dietary, Med. Times (Dec.) 1961.

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The second annual \$500 Writing Awards Contest for the best original scientific articles published in Southwestern Medicine is governed by the following rules:

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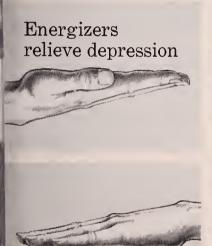
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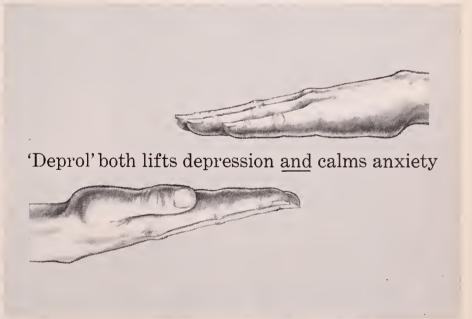
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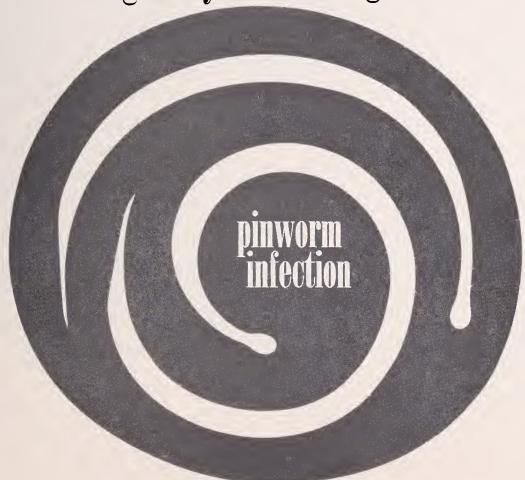
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*Royer, A., & Berdníkoff, K.: Canad. M.A.J. 86:60, 1962.

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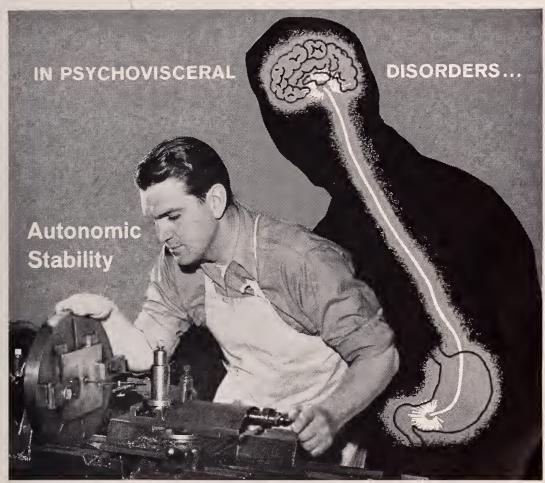
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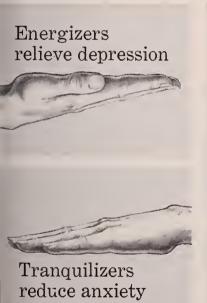


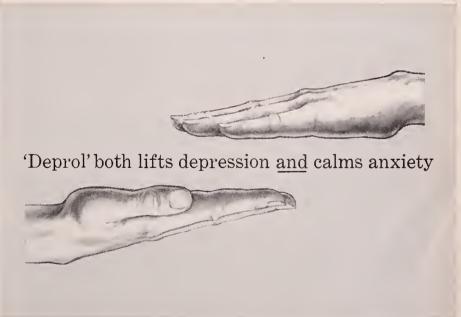
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New Mexico Chapter, AAGP, Ruidoso Summer Clinic, Ruidoso, N. M., July 15-18, 1963.

University of Colorado School of Medicine, 6th Annual Postgraduate Course in Pediatrics, Stanley Hotel, Estes Park, Colo., Aug. 5-9, 1963.

Western Association of Railway Surgeons, annual meeting, Continental Wayside Inn, Paso Robles, Calif., Sept. 26-28, 1963.

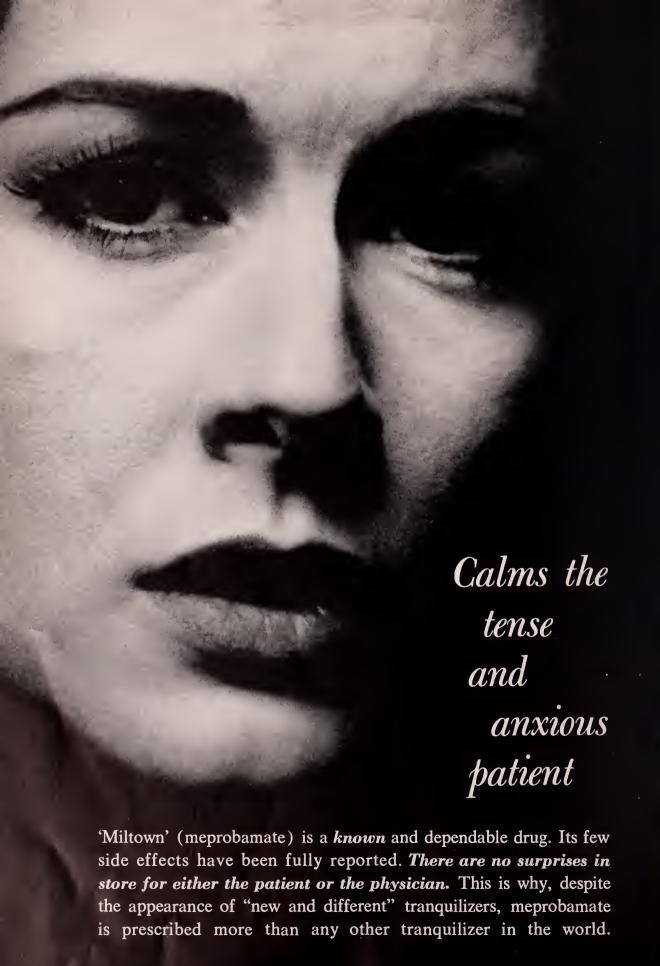
American Cancer Society, 1963 Scientific Session, A Conference on Unusual Forms and Aspects of Cancer in Man, Biltimore Hotel, New York, Oct. 21, 22, 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southwestern Medical Association, 45th Annual Meeting, Holiday Inn, El Paso, Nov. 14-16, 1963.



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1. Karnaky, K. J.: Tri-State M. J. 10:5, 1962.



CUTTER LABORATORIES Berkeley, California

MEETINGS

AAGP Summer Clinic To be Held in Ruidoso, July 15-18

Ruidoso, high in the cool pines of the Sacramento Mountains in southern New Mexico, will be the site once more for the Sixth Annual Ruidoso Summer Clinic, which is being presented by the New Mexico Academy of General Practice and the University of Kansas School of Medicine in the Holiday House, July 15-18, 1963.

Theme for the annual session, which draws physicians in numbers from as far away as East Texas as well as other parts of the southwest, will be "Modern Therapeutic Methods".

Members of the University of Kansas School of Medicine who will participate in the program are: Creighton A. Hardin, M.D., Associate Professor of Surgery; Gerald H. Holman, M.D., Associate Professor of Pediatrics; Edward J. Walaszek, Ph.D., Professor of Pharmacology; James C. Warren, M.D., Ph.D., Assistant Professor of Obstetrics and Gynecology, and Biochemistry; and Robert W. Weber, M.D., Assistant Clinical Professor of Medicine.

Officers of the New Mexico Academy of General Practice are Dr. Frederick R. Brown, Roswell, president; Dr. Walter Hopkins, Lovington, president-elect; Dr. Bram Vanderstok, Ruidoso, vice-president; and Dr. James A. Koch, Albuquerque, secretary-treasurer.

There will be thoroughbred and quarter horse racing at Ruidoso Downs before the meeting from July 12 through 14 and afterwards from July 19 through 2i. Ruidoso Downs is famous for its All-American Futurity, the richest quarter horse race in the world.

The mile-high summer resort has proved increasingly popular with physicians for its summer medical meeting, which confines its scientific sessions to mornings and leaves afternoons open for golfing, fishing, horseback riding, and sightseeing in the scenic grandeur of the cool pine-cloaked mountain terrain. Construction of modern new hotels, wide highways and opening of the unique recreation area at Sierra Blanca have transformed Ruidoso in recent years from a one-street village to a complete vacation center with all conveniences. Nearby are the White Sands National Monument, Carlsbad Caverns National Park, Bottomless Lake State Park, the Mescalero Apache Indian Reservation, and the historic town of Lincoln, where Billy the Kid made his last escape.

The course earns 12 hours Category I credit from the American Academy of General Practice.

Reservations should be made with Dr. Bram Vanderstok, Ruidoso, N. M.

The complete program is as follows:

PROGRAM Monday, July 15

9:00 a.m.	Anti-Coagulant Therapy; Indications and Control Dr. Robert W. Weber
9:25 a.m.	Treatment of Thrombophlebitis Dr. Creighton A. Hardin
9:50 a.m.	Abnormal Uterine Bleeding Dr. James C. Warren
10:15 a.m.	Coffee

10:35 a.m.	Factors Affecting Drug Action Dr. Edward J. Walaszek	9:25 a.m.	Juvenile Diabetes Dr. Gerald H. Holman
11:00 a.m.	Open Question and Discussion Period Moderator: Dr. Gerald H.	9:50 a.m. 10:15 a.m.	Anti-Diabetic Drugs Dr. Edward J. Walaszek
	Holman Panelists: Drs. Hardin,	10:35 a.m.	Coffee Staphylococcal Infections Dr. Robert W. Weber
	Walaszek, Warren, and Weber	11:00 a.m.	Open Question and Discussion Period
12:00 noon	Luncheon		Moderator: Dr. Creighton A. Hardin
	Tuesday, July 16		Panelists: Drs. Holman,
9:00 a.m.	Hormonal Products in Pediatrics Dr. Gerald H. Holman		Walaszek, Warren, and Weber
9:25 a.m.	Diuretic Therapy	12:00 noon	Luncheon
	including Aldactone) Dr. Robert W. Weber		Thursday, July 18
9:50 a.m.	Surgical Treatment of Hypertension	9:00 a.m.	Pharmacology of Emotion Dr. Edward J. Walaszek
10.15	Dr. Creighton A. Hardin	9:25 a.m.	Hyperbilirubinemia in the
10:15 a.m. 10:35 a.m.	Coffee Sex Hormone Preparations		Newborn Dr. Gerald H. Holman
10.55 a.m.	Dr. James C. Warren	9:50 a.m.	Antibiotic Complications
11:00 a.m.	Open Question and Discussion		Dr. Robert W. Weber
	Period Moderator: Dr. Robert W.	10:15 a.m.	Coffee
	Weber	10:35 a.m.	Surgical Treatment of Strokes Dr. Creighton A. Hardin
	Panelists: Drs. Hardin, Holman, and Warren	11:00 а.т.	Open Question and Discussion Period
12:00 noon	Luncheon		Moderator: Dr. James C. Warren
	Wednesday, July 17		Panelists: Drs. Hardin, Holman,
9:00 a.m.	Cervical Cancer		Walaszek, and Weber
	Dr. James C. Warren	12:00 noon	Adjournment

Writing Awards Contest

The second annual \$500 Writing Awards Contest for the best original scientific articles published in Southwestern Medicine is governed by the following rules:

Awards will be made in two classifications: Regional and National. All physicians who practice in West Texas, Arizona. New Mexico, Nevada or Northern Mexico (States of Sonora and Chihuahua) are eligible to compete for the Regional Awards. Physicians in the United States outside the Regional Area may compete for the National Awards.

Original scientific articles published in Southwestern Medicine between Sept. 1, 1962, and Sept. 1, 1963, will be eligible for the 1962-1963 contest.

Awards will be made in the following amounts for original scientific articles written by physicians in the Regional Area: \$100 for the best paper; \$75 for the second best paper; and \$50 for the third best paper.

Awards for original scientific articles in the National classifica-tion will be made in the following amounts: \$100 for the best

paper; \$75 for the second best paper; and \$50 for the third best paper.

paper.

An additional \$50 will be set aside annually to establish a fund for a special classification to be known as the Intern and Resident Writing Awards. Original scientific articles submitted by resident physicians and interns of the Regional Area will be eligible for special awards to be announced at a future date.

Contributions must be written in English. They must be typed, double spaced, on one side of the paper only. All papers should be submitted to Lester C. Feener, M.D., Editor, 310 North Stanton Street, El Paso, Texas.

As with all official medical journals, only those papers found acceptable by the Board of Editors of the journal will be published.

The Writing Awards have been established by Paul I. Murphy, President of Medical Research Association of New York and Boston, to encourage improvement in medical journal writing, Judging will be done by the educational committee of the American Medical Writers' Association.

COMMUNITY SERVICE AWARD—A dedicated Santa Fe pediatrician, Dr. Albert S. Lathrop, left, who has eared for thousands of children in his 34 years of practice at Santa Fe and who has been prominent in many civic activities there, receives the third annual A. H. Robins Community Service Award for New Mexico physicians. Dr. R. C. Derbyshire, Santa Fe, immediate past president of the N. M. Society, is shown presenting the award at the 81st annual meeting of the Society in Albuquerque on April 24. Dr. Lathrop is a past president of the state society.



NEW MEXICO OFFICERS—Among officers of the New Mexico Medical Society are those elected at the 81st annual meeting of the Society in Albuquerque, April 23-27. Shown below are Dr. C. Pardue Bunch, Artesia, president, center; Dr. Omar Legant, Albuquerque, president-elect, third from right; Dr. Robert P. Beaudette, Raton, vice-president, second from right; Dr. Hugh B. Woodward, Albuquerque, re-elected secretary-treasurer, third from left; and Dr. John F. Conway, Clovis, speaker of the House of Delegates, left. Others in the photo are Dr. Earl L. Malone, Roswell, delegate to the A. M. A., second from left, and Dr. R. C. Derbyshire, Santa Fe, retiring president, far right. Not shown is Dr. John T. Parker, Farmington, vice-speaker.



Pregnancy, Excessive Fluid Retention and Intermittent Diuretic Therapy

RICHARD X. SANDS, M.D., New York

Fluid retention is normal during pregnancy, the average amount retained being just over six liters during the entire forty weeks.¹ This fluid is distributed in the blood, in the extracellular space, in the liquor, in the uterus and breasts and in the products of conception.

Sodium is also retained during pergnancy. This element is essential for fetal growth as well as for the growth of such maternal structures as the breasts and the uterus, the latter having been estimated to contain as much as 2 Gm./kg., at term.² It has also been shown, by isotopic methods, that there is an increase of exchangeable potassium, the main intracellular cation, as well.³

Although fluid retention is normal, it may become excessive and show itself as marked weight gain and edema. Since these may be the initial and silent forerunners of pre-eclampsia, it is essential that excessive fluid retention be treated rapidly and effectively.⁴

Edma and excessive weight gain during pregnancy can sometimes be relieved by restriction of dietary sodium but this is a slow process and not always sufficiently effective. Furthermore, complete sodium restriction is difficult to attain, it is onerous for the patient and would appear to be non-physiologic, during pregnancy. It is therefore not a very practical device for outpatient practice.

On the other hand, the modern oral diuretics are rapid and dependable in action. The experiments described below represent a study of these as well as other features and demonstrate the effectiveness of a particular method of administration . . . Intermittent Therapy . . . as well as the

activity of the diuretic trichlormethiazide,* without salt restriction.

Material and Method

The group studied consisted of 162 women selected from the hospital prenatal clinics, varying in age from 14 to 44 and in parity from nil to nine. The major (92) were, however, Gravida I or II, 60 being primigravidas under 24 years of age. This bears out the fact that the prospective candidate for pre-eclampsia is mainly the young primigravida.⁵

Indications for treatment were excessive weight gain or edema, with or without hypertension. Edema was classified as puffiness, slight edema and edema 1+, 2+, etc. and nothing less than 1+ edema was considered suitable for treatment. A weight gain of more than two pounds per week was looked upon as excessive and a blood-pressure greater than 130/90 was treated as hypertension. These indications arose between the 20th and 39th weeks appearing during the third trimester in 86.4 per cent of cases. Only two cases, in the entire series, required treatment before the 20th week and pre-eclampsia eventually developed in one of these.

Drug administration was on an intermittent basis and is referred to as "Intermittent Diuretic Therapy." This consisted of one week on treatment and one week off. In this manner, therapy was continued, whenever necessary, until delivery. When thiazide diuretics are used there is a tendency for tolerance to develop and intermittent medication was employed in an attempt to limit the development of this phenomenon.

No dietary restrictions, of any sort, was employed and patients were specifically instructed to conitnue their normal salt intake. In many instances, when salt had been restricted by others, its return to the normal diet resulted in the disappearance of leg cramps.⁶

From the Woman's Hospital, Obstetric and Gynecological Division of St. Luke's Hospital, New York City.

^{*}Trichlormethiazide for these experiments was supplied through the courtesy of the Lakeside Laboratories of Milwaukee, Wisconsin, as Metahydrin.

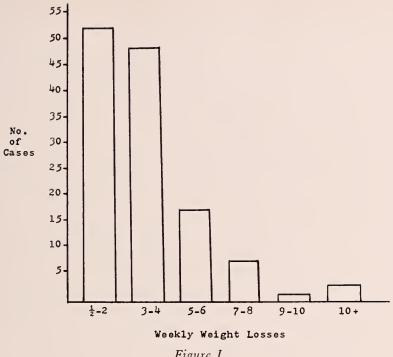


Figure I

The schedule of dosage was simple. A minimal dose of trichlormethiazide, 2 mg./day for one week, was initially used in each case. When this was unsuccesful the dose was doubled during the following week. If still unsuccessful, the case was looked upon as a failure. The same technique was employed in determining the development of tolerance in cases where treatment had continued successfully for some time.

Patients were instructed to weigh themselves at home so that the daily weight trend could be studied. However, it was the hospital weights which were used in assessing success or failure. Success consisted of a loss of weight, decrease or disappearance of edema and a drop in blood-pressure, where hypertension had been a factor.

Results

A number of patients were delivered before the results of therapy became apparent, leaving a group of 139 cases for final evaluation. Of these, 11 cases were complete failures (7.9 per cent) giving a success rate of just over 92 per cent. One pre-eclamptic, an obese woman aged 37 and weighing 328 pounds had a 2+ edema and a bloodpressure of 174/98. After treatment for one week, with a minimal dose of trichlormethiazide (2 mg./ day), her weight was reduced to 3041/2 pounds and her pressure dropped to 142/92. She did not appear to suffer adversely from this rapid 231/2 pound loss. Further investigation showed that she was not diabetic.

In the greatest number of cases the indication for treatment was excessive weight again and therapy was carried out for intervals of one to 16 weeks using the intermittent method, whenever applicable. Aside from the above case, in which the change was extreme, the weight loss was gradual and varied from one-half pound to five pounds per day, a daily loss of approximately one pound, being, by far, the most common level. The weekly levels ranged from one pound to 13 pounds with the most common losses being one to three pounds (Fig. 1). It is noteworthy that the higher losses were sustained by patients who were pre-eclamptic.

Hypertension was present, as an indication for treatment, in eight cases, the pressure in one case being as high as 200/130. Although hypotensive action did not appear to be a consistent feature of trichlormethiazide activity during pregnancy there were, nevertheless, striking examples of this type of response. One woman with persistent headaches and a pressure of 132/98 lost her headaches when her pressure dropped to 126/80, after one week of treatment with 2 mg.

Another patient who started treatment for hypertension with a blood-pressure of 150/106 ended up with her pressure at a level of 128/78, after a

few weeks. One case of essential hypertension, at 23 weeks, was eventually admitted to hospital when she developed a 3+ albuminuria and a blood-pressure of 172/120.

Pre-eclampsia, defined as the presence of excessive weight gain or edema, albuminuria, and hypertension, as a triad, or the presence of any two of these signs, developed in 24 cases, an incidence of 14.8 per cent. This figure compares with an overall incidence of toxemia of pregnancy, in all gravidas, of seven per cent. Most of these were of a mild type and treatment was continued on an outpatient basis. Initially, they all responded to diuretic therapy. Surprisingly, there was only one stillbirth in this group, the baby weighing only 1729 Gm. and being five weeks premature. No other baby in this toxemic group weighed less than 2523 Gm.

The smallest living baby in the entire series weighed two pounds 10 ounces, was seven weeks premature and born by Caesarean section, for placenta previa, to a mother with a history of four previous abortions. Seven other babies weighed under 2500 Gm. There were two stillbirths additional to the above, and another fetus which died in utero and whose delivery was followed by a necrotic placenta. In contrast, there were 30 babies weighing over eight pounds an incidence of 18.5 per cent. However, none of these patients were diagnosed as diabetics although there must undoubtedly have been a number of cases of prediabetes in the entire series.

In an earlier communication⁸ attention was drawn to the fact that many pregnant women developed glycosuria during the course of thiazide therapy. However, in this particular set of experiments, the incidence of glycosuria after the institution of diuretic therapy was insignificant and compares with an incidence of 10 per cent, in a very extensive series, to be reported elsewhere.⁹

Side-effects were not a feature of trichlormethiazide therapy, when used as described, and treatment did not have to be discontinued for this reason, in any case. One patient complained of feeling faint during the first week of therapy and another felt tired and breathless during the second week whereas nervousness and breathlessness were reported by two others. These symptoms were of a mild degree and did not interfere with continuation of treatment, disappeared with continued medication, and were admitted to only after specific question.

Two women had a slight degree of hydramnios. No fetal abnormalities occurred and only one baby was found to have cryptorchidism, on one side.

Discussion

Salt restriction had, originally, been used by others in treating many of these patients for excessive weight gain and edema. Although some women did lose weight, the results in most instances were less than effective and continued weight gains of one to six pounds, in one week, were quite common. One woman gained three and one-half pounds in five days and another gained 18½ pounds in four weeks. It is undoubtedly a fact that all these patients did not follow instructions. Restricted salt intake is a difficult regimen to enforce outside of the metabolic ward of a hospital.

For further comparison, a group of 180 patients, chosen at random, were studied. In this group 16 cases had required treatment and had been placed on salt restriction. This incidence, interestingly enough, is in keeping with the reported incidence of toxemia in all pregnanices.7 It was found that during the first two weeks of salt restriction three women lost between three-fourth and three pounds whereas seven gained between one-half and three pounds. Three to five weeks later, fourteen patients had gained weight, as much as nine pounds in one instance. These results do not speak highly for salt restriction as a form of treatment for excessive fluid retention during pregnancy, a time when effective results are needed quickly. These results are also in contrast with those obtained when trichlormethiazide, alone, was used.

It has been stated that the use of thiazide diuretics may be responsible for intra-uterine death. ¹⁰ This is not borne out by the low incidence of fetal death in the present series in which cases were treated for comparatively long intervals. In addition, by virtue of the indications for selection, these women had a high pre-disposition to pre-eclamptic toxemia and fetal mortality has been, proverbially, high in this and allied conditions, long before the advent of the thiazides. ¹¹

The question must be asked, does the use of a thiazide diuretic lessen the incidenec of pre-

eclampsia in a disposed group? It is not easy to supply an answer in view of our inadequate knowledge regarding the etiology of this condition. Nevertheless, there is no doubt that patients, rid of their excess fluid load, became more cheerful and very much more comfortable during a state which can be as trying as cyesis.

Was the fetus harmed by this treatment? The low incidence of fetal mortality indicates that it was not. The thiazides have been shown to pass the so-called utero-placental barrier¹² but in spite of this the incidence of babies weighing over eight pounds was high and none of the babies were reported to be dehydrated, at birth. Furthermore, there was no instance of fetal abnormality. On the basis of these results, obtained in these experiments, it would seem that the oral thiazide, trichlormethiazide, used as described and without salt restriction, is suitable for the treatment of excessive fluid retention and edema, during pregnancy.

Summary

- 1. A group of 162 pregnant women were treated for excessive weight gain or edema with trichlormethiazide, (Metahydrin) an oral thiazide diuretic.
- 2. Intermittent diuretic therapy, a novel method, enabled this drug to be used for comparatively long intervals.

- 3. Salt restriction was not employed.
- 4. Treatment was successful in just over 92 per cent of cases.
- 5. Attention is drawn to the relative ineffectiveness of salt restriction as a form for excessive fluid retention during pregnancy.
- 6. Minor side-effects occurred in four cases and there were no fetal abnormalities.

1212 Fifth Avenue

Method

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Results with Oxymetholone Elixir In a Group of Depressed Women

C. D. HUNTER, M.D.,
BEN WEINER, M.D.,
El Paso

In a previous study with oxymetholone* it was noted that in addition to its anabolic action it also was found to make a majority of the patients "feel better." On the basis of this fact it was therefore decided to test this drug where this second property would do the most good; namely in depressed patients. Accordingly, it was decided that for a given period of time all patients of this nature were to be treated solely with oxymetholone (if possible) and results determined.

Instead of tablets as in the previous group an elixir was provided containing 2.5 mgr./5 cc. At first the intention was to treat both sexes but after several weeks it was found that there was but a single male included so that the final group consisted only of fifty females.

The method involved was to give the patients the elixir and instruct them to take one teaspoon three times per day after meals. All of the group were followed at regular intervals for a ninety day period. No placebos were employed and no other

^{*}Trial with an anabolic agent in a general practice. Southwestern Medicine, Jan. 1962.
Oxymetholone is manufactured under the name "Anadrol" by Syntex Laboratories.

medications were given except analgesic in four cases.

Patient Profile

All women in the group exhibited the classical signs of depression: i.e., loss of appetite, loss of libido, chronic fatigue, excessive worrying, feelings of worthlessness, insonmia, etc., together with some degree of anxiety. As the study progressed it was decided to divide the group into two: namely those of "mild" and "moderate" severity. This was an arbitrary division based, of course, only on the opinion of the authors. None of the patients were hospitalized, i.e., following this classification would be considered severely depressed and requiring possible EST.

The age spread was 19-62 and the average duration of symptoms was 5.5 months before treatment was begun. Twenty-nine of the group were classified as "mild" and the remaining 21 as "moderately" depressed. Only nine of the patients had organic pathology and this was felt to be only indirectly involved in the patient's mental attitude.

These were: 1. carcinoma of gall bladder—one patient (she had no knowledge of her disease), 2. ASHD—three patients, 3. cirrhosis of liver—two patients, 4. chronic glomerulonephritis—one patient, and 5. HCVD—two patients.

Reculto

These can best be summarized according to the division made into the "mild" and "moderate" depressed groups. The rating scale refers to the overall change in the patient rather than single symptoms.

	''Mild'' Group	''Moderate'' Group	Overall
Worse	3 10.3%	5 23.8%	16%
No Improvement	4 13.8%	6~28.5%	20%
Improved	22 76.9%	10 47.7%	64%

As all symptoms were subjective, of course, there was no way of ruling out the role of suggestion, trying to "please the doctor" or any such factors in these results.

Weight Gain

As in the previous work, the great majority (46) of the patients put on weight while taking the drug. An average 2.6 pounds per month for the entire group was found. Only two patients lost weight and two others did not change.

Laboratory Data

In fifteen of the patients laboratory data was obtained before treatment and at the end of the ninety day period. Five of these were BUN values,

five were SGOT and five were BSP tests. These are summarized below:

В	UN (nor: Before	mal 10-20) Conclusion	SGO	Γ (norr Before	nal 10-40) Conclusion
1.	16.0	14.8	1.	28	30
2.	9.5	11.7	2.	18	18
3.	10.7	10.7	3.	20	24
4.	14.2	14.7	4.	32	36
5.	16.8	16.8	(carcino gall bla	ma of dder)
(chronic r	nephritis)	5.	95	95
				(cirrh	

BSP

In all five patients values prior to and at the conclusion of the ninety day period were less than four per cent.

Acceptability of Elixir

All patients were queried as to whether the elixir was acceptable. Results were as follows:

Prefers	11 patients	22	per	cent
Likes	30 patients	60	per	cent
Dislikes	9 patients	18	per	cent

All of the group who disliked the elixir stated that it was too bitter.

Side-Effects

There were two patients in whom side effects were reported which necessitated discontinuing the drug. One 34 year old woman developed generalized urticaria on the 26th day. The other was a 62 year old lady with HCVD (usual BP 180/110) who had repeated nose bleeds without any increase in BP after 19 days on the drug. Both patients became asymptomatic within 48 hours after stopping it.

Summary

- 1. Oxymetholone was found to be beneficial in the majority of 50 women treated for depression (64 per cent). Better results were obtained in those found to be "mildly" depressed (76.9 per cent) rather than "moderately" depressed (47.7 per cent).
- 2. An average weight gain of 2.6 pounds per month in the entire group was found.
- 3. The drug did not affect BUN, SGOT or BSP values in 15 of the group.
- 4. Eighty-two per cent of the group liked or preferred oxymetholone in the elixir form.
- 5. Side-effects were observed in two patients. One developed generalized urticaria and the other had repeated nose bleeds.

800 Montana St.

El Paso High School Student Wins AMA Award

Winner of one of the two Honorable Mention Citations of the American Medical Association at the 14th National Science Fair-International in Albuquerque, is John James Stevenson, 17, a senior at Austin High School in El Paso. His award, which consists of a citation for excellence in research in the field of medical science and health, was presented by Dr. George M. Fister, Ogden, Utah, president of the AMA for his exhibit on "Genetics of the Bacterium Pseudomonas."

The presentation was made at a Health Awards Banquet, co-hosted by the American Medical Association, American Dental Association, American Pharmaceutical Association, and American Veterinary Medical Association, attended by 1,150 student-finalists, teachers, counselors, and sponsors of regional fairs from 50 states and eight foreign nations. He was an en-

trant from the Ninth Trans-Pecos Regional Science Fair in El Paso, sponsored by the El Paso Public Schools, Texas Western College and El Paso Business and Industrial Firms.

John's exhibit, in which he explored the transformation, transduction and sexual recombination in bacteria, was chosen by members of the AMA Council on Scientific Assembly from a field of 400 finalists. Judges were J. Arnold Bargen, Temple, Texas; Charles D. Bussey, Dallas; George R. Meneely, Chicago; and Walter D. Scott, Los Angeles.

The National Science Fair-International is the annual climax of local and regional fairs in which the 400 finalists survive the competition of one million other exhibitors. It is sponsored by Science Service of Washington to interest talented students in the study of medicine.

SCIENCE FAIR AWARD—A 17-year-old El Paso student at Austin High School, John James Stevenson, (right), won an Honorable Mention Citation, one of four awards of the Americal Medical Association at the 14th National Science Fair-International in Albuquerque, May 6-11. The presentation was made by Dr. George M. Fister, Ogden, Utah, AMA president, second from right.

Dr. J. Arnold Bargen, Temple, Texas, chairman of the AMA Council on Scientific Assembly, second from left, headed the AMA judging committee. Also on the committee was Dr. Charles D. Bussey (not shown) of Dallas.

Pictured (left to right) with Doctors Bargen and Fister are the four AMA winners: Deborah Chase, New York City; Edward Joseph Duffy, Fort Lauderdale, Fla., Rhea Louise Keller, Fort Wayne, Ind., and Stevenson.







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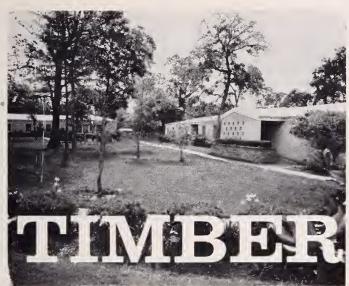
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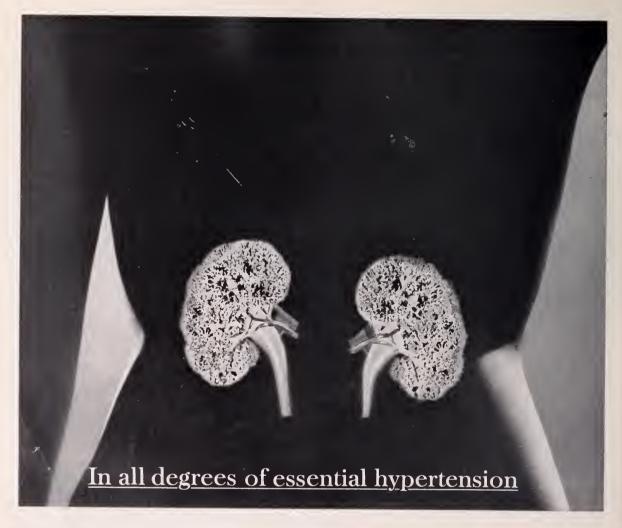
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Help protect the kidneys and other threatened organs

When treatment of hypertension is effective the danger of damage to the renal system is reduced.1-- "Hypertensive patients suffer from vascular deterioration roughly proportional to the severity of the hypertension... Reduction of blood pressure to normotensive levels reduces or arrests the progress of vascular damage with a resultant decrease in morbidity and mortality." Because Rautrax-N lowers blood pressure so effectively, it will help provide this important protection not only for the kidneys but also for the heart and brain of your hypertensive patients. Rautrax-N is effective in mild,3 moderate,3,4 or severe hypertension.4,5

Dosage: Initially, 1 to 4 tablets daily preferably at mealtime. For maintenance, 1 or 2 tablets daily.

Side effects and precautions: Rauwolfia preparations may cause reversible extrapyramidal symptoms and emotional depression. Caution indicated in use with depression, suicidal tendencies, peptic ulcer. Minor side effects: diarrhea, weight gain, nausea, drowsiness. Bendroflumethiazide may cause reversible hyperuricemia and/or gout, unmask latent diabetes, increase glycos-

uria in diabetics. Caution indicated in use for patients on digitalis, with severely damaged kidneys, renal insufficiency, increasing azotemia, cirrhosis. Contraindicated in complete renal shutdown. Minor side effects: leg or abdominal cramps, pruritis, paresthesias, mild rashes.

Supply: Rautrax-N-capsule-shaped tablets providing 50 mg. Raudixin® [Rauwolfia serpentina whole root], 4 mg. Naturetin® [bendroflumethiazide], and 400 mg. potassium chloride. Rautrax-N Modified-50 mg. Raudixin [Rauwolfia serpentina whole root], 2 mg. Naturetin [bendroflumethiazide], and 400 mg. potassium chloride, in capsule-shaped tablets. For full information, see your Squibb Product Reference or Product Brief. References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. 9:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. 63:545 (Apr.) 1960. (3) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. 10:516 (June) 1962. (4) Hutchison, J. C.: Current Therap. Res. 4:610 (Dec.) 1962. (5) Feldman, L. H.: North Squibb Quality

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Official Journal of The Southwestern Medical Association,
The Western Association of Railway Surgeons, Southwestern Dermatological Society,
Texas District One Medical Association, The Southwestern New Mexico Medical Society,
and El Paso County Medical Society

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45th ANNUAL MEETING
SOUTHWESTERN MEDICAL ASSOCIATION
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OF MEDICINE

VOL. 44, NO. 7

July, 1963



Founded 1916





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After seven days' therapy with Cream Cordran

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- reduces pruritus suppresses the inflammatory process
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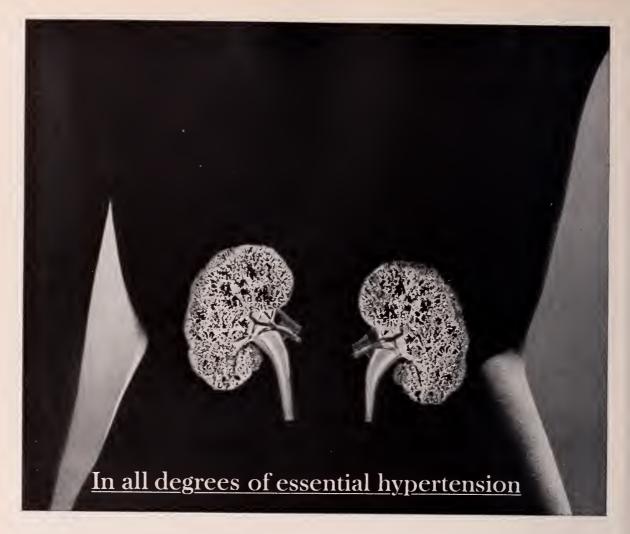
G. I. Upsets: Whether induced by infection or, perhaps, a simple functional disturbance, nausea and vomiting are effectively controlled by Dramamine [dimenhydrinate]. The easy-to-take liquid form is ideal for the patient who finds tablets hard to swallow. Dimenhydrinate may mask symptoms of streptomycin activity and should be used with caution in these circumstances.

Dramatic results with Dramamine® dimenhydrinate

the classic antinauseant

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Help protect the kidneys and other threatened organs

When treatment of hypertension is effective the danger of damage to the renal system is reduced.1-2 "Hypertensive patients suffer from vascular deterioration roughly proportional to the severity of the hypertension...Reduction of blood pressure to normotensive levels reduces or arrests the progress of vascular damage with a resultant decrease in morbidity and mortality." Because Rautrax-N lowers blood pressure so effectively, it will help provide this important protection not only for the kidneys but also for the heart and brain of your hypertensive patients. Rautrax-N is effective in mild,3 moderate,3,4 or severe hypertension.4,5

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Cautions: Severe mental depression has appeared in a small percentage of patients, primarily in a dosage above 1 mg. daily. Usually the patient had a pre-existing, incipient, endogenous depression which was unmasked or accentuated by reserpine. When the drug is discontinued, depression usually disappears, but hospitalization and shock therapy are sometimes required. Daily dosage above 0.25 mg. is contraindicated in patients with a history of mental depression or peptic ulcer. Withdraw Serpasil (reserpine) 2 weeks before surgery, if possible. For emergency surgical procedures, vagal blocking agents should be given parenterally to prevent or reverse hypotension and/or bradycardia.

Supplied: Tablets, 0.1 mg., 0.25 mg. and 1 mg.

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Official Journal of

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VOL. 44

JULY, 1963

NO. 7

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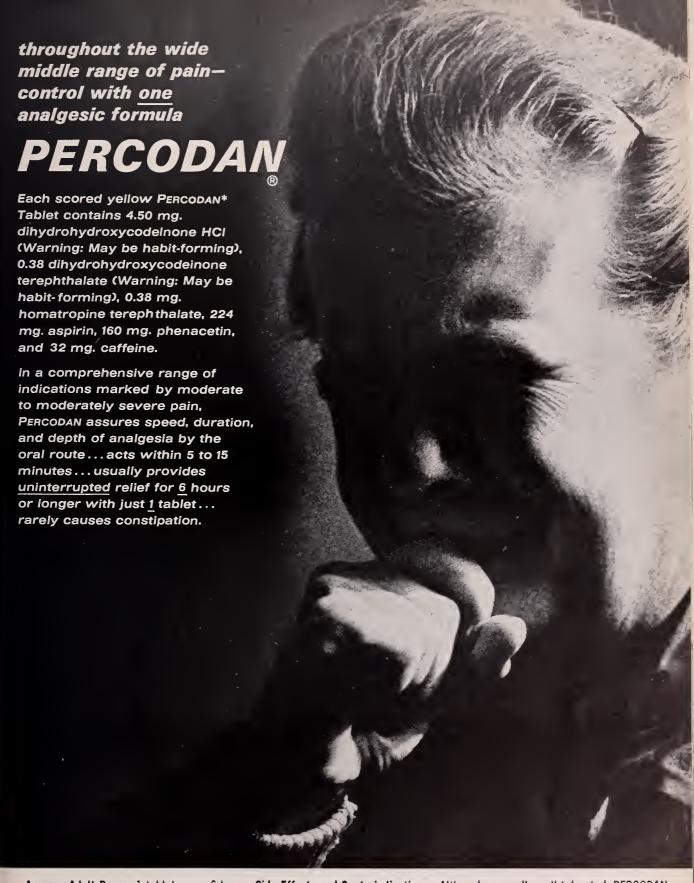
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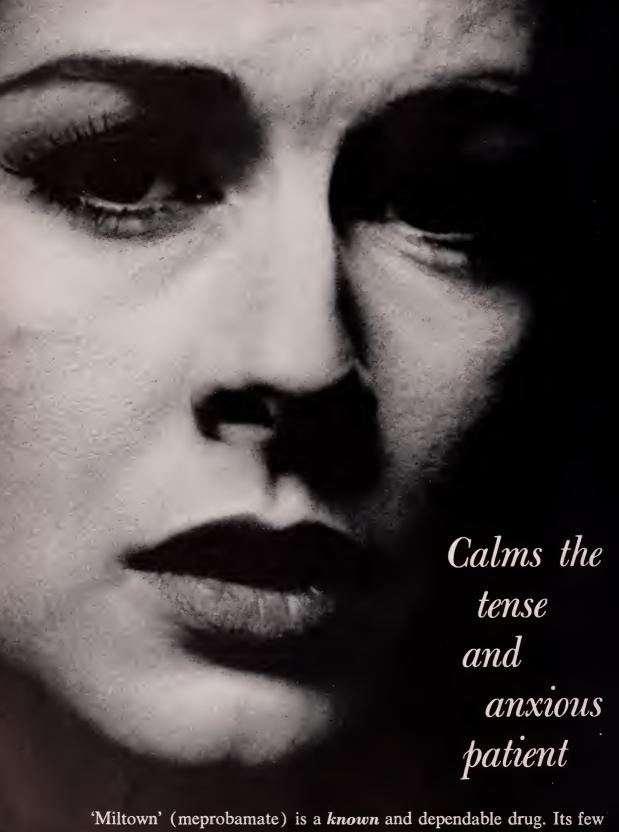
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Outstanding Record of Effectiveness and Safety

- 1. Relieves anxiety and anxious depression in a broad spectrum of clinical conditions.
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Slight drowsiness may occur with meprobamate and, rarely, allergic reactions. Meprobamate may increase effects of excessive alcohol. Use with care in patients with suicidal tendencies. Massive overdosage may produce coma, shock, vasomotor and respiratory collapse. Con-

sider possibility of dependence, particularly in patients with history of drug or alcohol addiction. Withdraw gradually after prolonged use at high dosage.

Usual dosage: 1 or 2 400 mg. tablets t.i.d. Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets; bottles of 50.

the original meprobamate

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A Psychiatric Hospital licensed by the State Health Department.
90 beds for the care and treatment of nervous and mental disorders.
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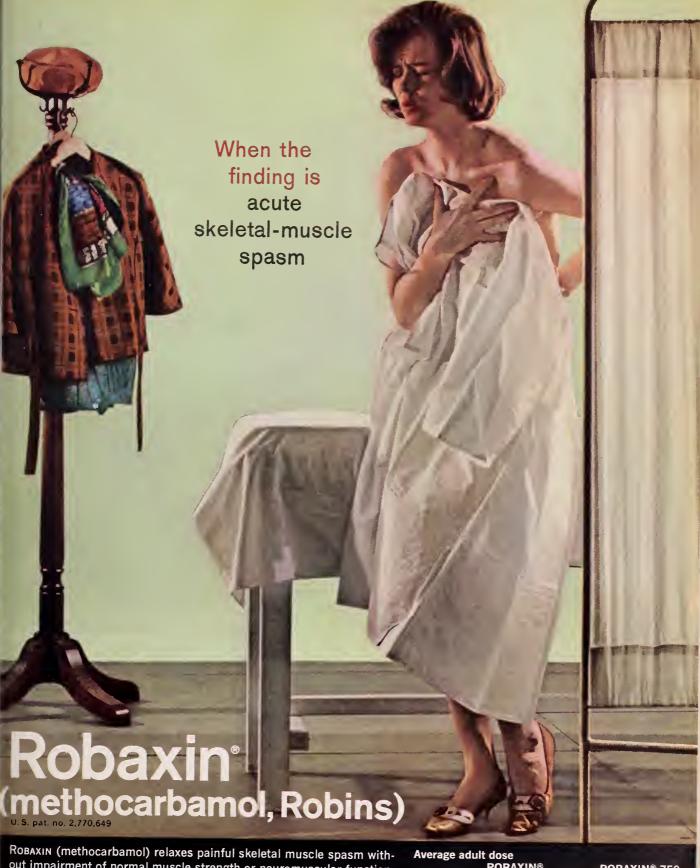
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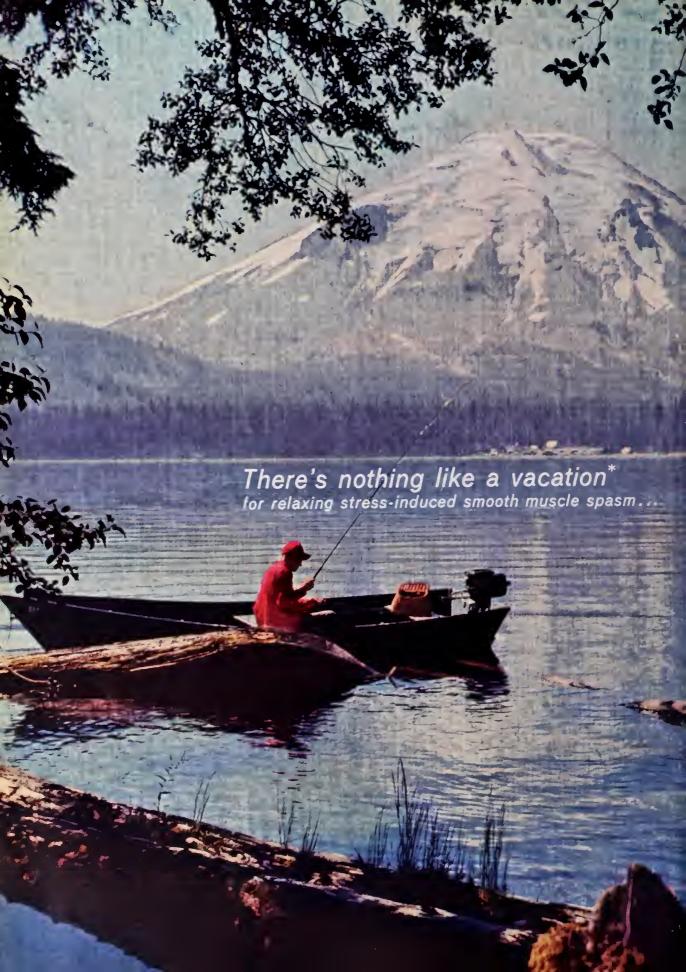
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nausea, may occur rarely, but usually disappear when dosage is reduced. Hypersensitivity reactions have been reported infrequently. Contraindicated in patients hypersensitive to the drug.

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(methocarbamol, 500 mg./tab.) (methocarbamol, 750 mg./tab.)
Initially.......3 tablets q.i.d. 2 tablets q.i.d.
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or 2 tablets t.i.d.
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..nothing, that is reficent the sedative-antispas noor action of

Donnatal



In each Tablet, Capsule	In each
or 5 cc. Elixir	Extentab
0.1037 mghyoscyamine sulfate	0.3111 mg.
0.0194 mg atropine sulfate	0.0582 mg.
0.0065 mghyoscine hydrobromide	0.0195 mg.
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(Warning: May be habit forming)	

Prescribed by more physicians than any other antispasmodic—well over 5 billion doses!

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Outstanding effectiveness in clinical usage—plus freedom from the risk of serious side effects—are the compelling reasons why DONNATAL has maintained its pre-eminent position as a smooth muscle relaxant through the years.

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- well tolerated^{1.6}
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DONNATAL is indicated in recurring, persistent or chronic visceral spasm, as in: peptic ulcer, pylorospasm, irritable stomach and colon, nervous indigestion, dysmenorrhea, nausea of pregnancy, motion sickness, nocturnal enuresis, mucous colitis and diarrhea.

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REFERENCES: 1. Barden, F.W., Hill, P.S., Mahaney, W.F., and Cuneo, K.J.: J. Maine M.A. 45:11, 1954. 2. Chaput, Y., and Baillargeon, J.: L'Union med. du Can. 86:205, 1957. 3. Hock, C.W.: Clin. Med. 8:1932, 1961. 4. Kilstein, R.I.: Rev. Gastroenterol. 14:171, 1947. 5. Marks, L.: Am. J. Gastroenterol. 27:180, 1957. 6. Wharton, G.K., Balfour, D.C., Jr., and Osmon, K.L.: Postgrad. Med. 21:406, 1957.

Lifts depression..

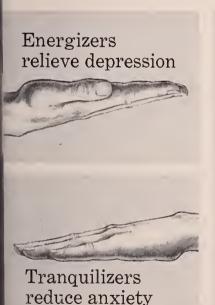


as it calms anxiety

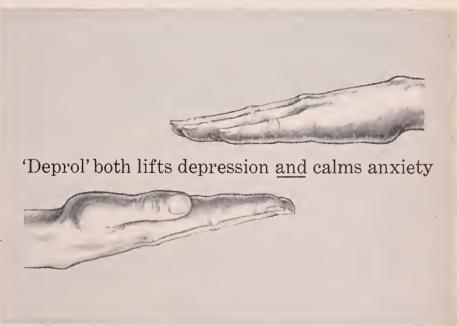
Brightens mood...relaxes tension

Energizers may stimulate the depressed atient, but they often aggravate anxiety and assomnia. Tranquilizers may help the anxious atient, but they often deepen depression and motional fatigue.

Deprol' avoids these "seesaw" effects; it reieves both depression and anxiety. Moreover, t does not cause liver damage, psychotic reacions or changes in sexual function. Slight drowsiness and, rarely, allergic reactions, due to meprobamate, and occasional dizziness or feeling of depersonalization in higher dosage, due to benactyzine, may occur. Meprobamate may increase effects of excessive alcohol. Use with care in patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction. Withdraw gradually after prolonged use at high dosage.



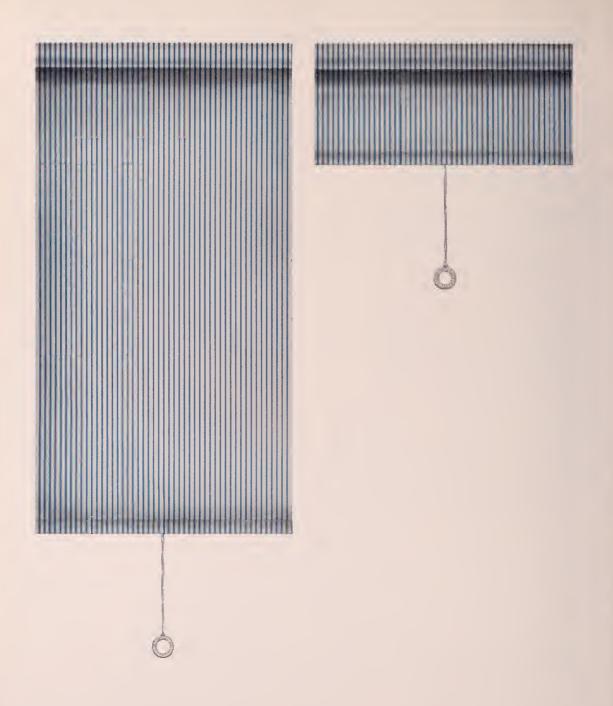
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'Deprol'

meprobamate 400 mg. + benactyzine 1 mg.





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- not contraindicated in the presence of liver and kidney disorders
- well tolerated by the elderly and chronically ill
- rarely depresses respiration

AVERAGE DOSE: 0.5 Gm. at bedtime. Total daily dosage over 1 Gm. not recommended for continuing therapy. CAUTION: Careful supervision of dosage is advised, especially for patients with a known propensity for taking excessive quantities of drugs. Excessive and prolonged use of glutethimide in susceptible persons, for example, alcoholics, former addicts, and other severe psychoneurotics, has sometimes resulted in dependence and withdrawal reactions. In those cases, dosage should be reduced gradually to lessen the likelihood of withdrawal reactions such as nausea, abdominal discomfort, tremors, or convulsions.

SIDE EFFECTS: Occasional reversible skin rash and nausea.

SUPPLIED: Tablets, 0.5 Gm., 0.25 Gm., and 0.125 Gm. Capsules, 0.5 Gm.

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COMING MEETINGS

New Mexico Chapter, AAGP, Ruidoso Summer Clinic, Ruidoso, N. M., July 15-18, 1963.

University of Colorado School of Medicine, 6th Annual Postgraduate Course in Pediatrics, Stanley Hotel, Estes Park, Colo., Aug. 5-9. 1963.

Western Association of Railway Surgeons, annual meeting, Continental Wavside Inn, Paso Robles, Calif., Sept. 26-28, 1963.

American Cancer Society, 1963 Scientific Sescion, A Conference on Unusual Forms and Aspects of Cancer in Man, Biltmore Hotel. New York. Oct. 21, 22, 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southwestern Medical Association, 45th Annual Meeting, Holiday Inn, El Paso, Nov. 14-16, 1963.

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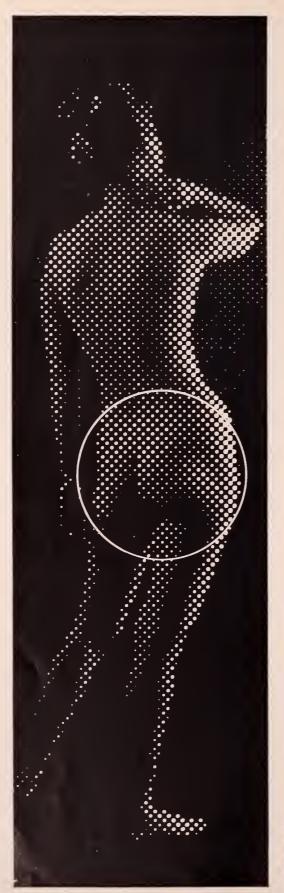
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1. Karnaky, K. J.: Tri-State M. J. 10:5, 1962.



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MEETINGS



Dr. Bunch

Dr. Bunch Elected President Of N. M. Medical Society

Dr. C. Pardue Bunch of Artesia, N.M., was elected president of the New Mexico Medical Society at its 81st annual meeting in Albuquerque, April 24-26, 1963.

Other new officers are Dr. Omar Legant, Albuquerque, president-elect; Dr. Robert P. Beaudette, Raton, vice-president; Dr. Hugh B. Woodward, Albuquerque, secretary-treasurer; Dr. John F. Conway, Clovis, speaker of the House of Delegates; Dr. John T. Parker, Farmington, vice-speaker, and Dr. Earl L. Malone, Roswell, delegate to the A.M.A.

Born at Statesville, N. C., Dr. Bunch was graduated from the Carlsbad, N.M., High School in 1929, and received his A.B. and M.D. degrees from Duke University. He did graduate study at the University of California and Tufts College. He then served a rotating internship at the Episcopal Hospital in Philadelphia, 1939-40, and was a first year resident in Ophthalmology and Otolaryngology at Duke Hospital in Durham, N.C.

He entered the private practice of medicine as a general practitioner at Sturgill, N.C., in 1942 and moved to Artesia, N.M., in 1944.

He was president of the Eddy County Medical Society, 1947-48, and 1951-52, president of the New Mexico Chapter of the American Academy of General Practice, 1959-60, and speaker of the House of Delegates of the New Mexico Medical Society, 1959-62. He was chairman of the state

society's public relations committee, 1949-50, secretary of the Board of Supervisors, 1949-50, chairman of the Board of Supervisors from 1950 until 1952, and a member of the New Mexico Board of Medical Examiners, 1952-1958. He was chief of staff of the Artesia General Hospital, 1947-1949. He has contributed to several medical and scientific journals and is a member of the American Society of Clinical Hypnosis.

During the summer of 1934 Dr. Bunch was delegate to the American-Japan Student Conference in Tokyo, and from 1935 to 1936 served as headquarters secretary to the Student Volunteer Movement in New York.

A Methodist, Dr. Bunch was lay delegate to the General Conference in 1960 and is chairman of the New Mexico Conference Commission on Christian Higher Education. He is secretary-treasurer and a past president of the Artesia Sacramento Camp, a member of the Rotary Club and the Artesia Chamber of Commerce, and a former member of the Conquistador Council of Boy Scouts. He is a director of the Artesia Broadcasting Company and president of the Medical Center, Inc., in Artesia. He is a member of the Omicron Delta Kappa and Tau Kappa Alpha honorary societies.

He is married to the former Marjorie King of Taunton, Mass. Dr. and Mrs. Bunch are the parents of Mildred Elizabeth, George Pardue, Charlotte Anne and Winifred.

Railway Surgeons to Meet In Paso Robles, Calif.

The 1963 annual meeting of the Western Association of Railway Surgeons will be held in Paso Robles, Calif., Sept. 25-28, with headquarters in the Continental Wayside Inn.

Outstanding guest speakers will talk on many subjects of interest including surgery, medicine, dermatology, and orthopaedics. Dr. Charles R. Kennedy, Paso Robles, President of the Association, has announced.

Other officers of the Association are:

Dr. John C. Mitchell, Salina, Kan., first vice-president; Dr. Ivan Ingram, San Francisco, second vice-president; Dr. Harry O. Hund, San Rafael, Calif., treasurer; and Dr. Graham Owens, Kansas City, Mo., secretary. Dr. Hugh S. Collett, Elko, Nev., is chairman of the Association's Executive Committee.

Scientific sessions will be limited to morning hours, with afternoons free for sightseeing and entertainment.

A schedule of the convention activities follows:

Wednesday, September 25

6:30 p.m. President's Cocktail Party for Officers and Guests, Continental Wayside Inn

Thursday, September 26

10:30 a.m. Coffee

11:00 a.m. Scientific Session

12:00 noon Cocktails

12:30 p.m. Luncheon

2:00 p.m. Bus Tour to Hearst Castle

6:00 p.m. Cocktails and Dinner

The Breakers, Morro Bay

Friday, September 27

9:00 a.m. Scientific Session

10:30 a.m. Coffee

11:00 a.m. Scientific Session

12:00 noon Cocktails

12:30 p.m. Luncheon

2:00 p.m. Bus Tour of Old Missions

Golf Tournament Bridge Tournament

7:00 p.m. Annual Banquet

Saturday, September 28

9:00 a.m. Scientific Session

10:30 a.m. Coffee

11:00 a.m. Business Meeting

12:30 p.m. Adjourn

Speakers Selected for Southwestern Meeting

Speakers have been selected for the 45th annual meeting of the Southwestern Medical Association in El Paso Nov. 14-16, Dr. M. D. Thomas, president, has announced.

They will be as follows:

Dr. Ethan Allan Brown, Boston, Allergist; Dr. Demetrio Sodi-Pallares, Mexico City, Cardiologist; Dr. Hermann Burian, Iowa City, Ophthalmologist; Dr. J. T. Jabbour, Oklahoma City, Pediatric Neurologist; Dr. S. Arthur Localio, New York, General Surgeon; Dr. Carl Wasmuth, Cleveland, Anesthesiologist and Attorney; and Dr. James L. Sheehey, Los Angeles, Otologist.

The meeting will be the site of the interim session of the New Mexico Medical Society.

Category II credit for the meeting has been approved by the American Academy of General Practice.

Convention headquarters will be at the new Holiday Inn, which is located on the Freeway near the El Paso International Airport. The meeting will be an open one and all doctors are invited. There will be morning sessions only.

Dr. Zigmund W. Kosicki of El Paso is general chairman of the meeting.

On the last day of the convention, Nov. 16, Texas Western College will meet Texas Tech in Texas Western's homecoming game at 8 p.m. in the new Sun Bowl stadium.

Fall Seminar to be Held in Las Cruces

The Dona Ana County Medical Society will hold its Fall Seminar, Oct. 19 and 20, 1963, at the Palms Motel in Las Cruces, New Mexico.

Speakers will include:

Dr. Oliver G. Stonington, head of the Division of Urology at the University of Colorado Medical School, who will speak on "Office Urology and Pediatric Urology".

Dr. Dalton Jenkins, Assistant Professor of Medicine and Director of the Metabolic Unit at the University of Colorado Medical School, who will talk on "A New Approach to Diabetes".

The meeting has been approved for seven hours of Category I Credit by the American Academy of General Practice.

Registration will start at 1:00 p.m. Oct. 19 and the program will begin at 2:00 p.m. The seminar will run all day Sunday.

Dr. W. D. Sedgwick is chairman of the committee in charge of the program. Reservations should be made direct to the Palms Motel.

Of interest will be the football game between New Mexico State University and New Mexico University in Las Cruces, Oct. 19.

ORIGINAL ARTICLES

Effectiveness of Sulfamethoxazole* in Treating Type A Beta Hemolytic Streptococcal Pharyngitis

Ham Jackson, M.D.
Jack Cooper, M.D.
W. J. Mellinger, M.D.
A. R. Olsen, M.D.

Fort Morgan Medical Group Fort Morgan, Colo.

A relationship between type A beta hemolytic streptococcus throat infection, rheumatic fever, and glomerulonephritis has been very adequately demonstrated.¹⁻³ Not only the classical "strep throat" with its generalized septic symptoms but also the more benign and often unrecognizable streptococcal infection can lead to rheumatic complications.¹ Massell⁴ has shown that between 40 and 50 per cent of these complications result from seemingly mild streptococcal infection.

Other studies^{1,3,5} have demonstrated that adequate treatment of these hemolytic streptococcus infections markedly reduce subsequent attacks of rheumatic fever and nephritis. Morris⁶ showed in 1956 that to lower effectively the incidence of subsequent rheumatic manifestations there must be not only symptomatic improvement but the hemolytic streptococcus must be eliminated from the patient.^{1,7}

Complete elimination of the organism is not easily accomplished as evidenced by the fact that the generally acceptable form of treatment at the present time is at least 10 days of adequate dosage of either penicillin or erythromycin.^{1,6,8} However, some other medication is required for the occasional patient who is unable to take either of

*The sulfamethoxazole was supplied as Gantanol $\mbox{\fontfamily{\fontfamily{0pt} \fontfamily{0pt} \fontfa$

the effective antibiotics; also other factors make it desirable to find additional effective methods of eliminating the hemolytic streptococcal infection from the patient.

With present therapy there are significant side effects, considerable cost to the patient and inconvenience in dosage form. No matter how nontoxic and effective a drug is, if there are any side effects it is desirable to find drugs of equal effectiveness but with a minimum of unwanted reactions.

Cost of medication may be no consideration in preventing rheumatic fever in a single patient but as often happens in private practice, the cost takes on considerable significance when whole families are infected with the streptococcus. In such cases, when one prescribes antibiotic therapy for ten days, a financial burden is placed on the family. After several such incidents are repeated some families simply are forced to take a chance on getting rheumatic fever.

Ease in administration and convenience of dosage form are important because many treatment failures occur due to the patient's neglect to take medication as prescribed. Ideally, injectable benzathine penicillin works well but in private practice many patients find many reasons for not returning for injections.

A relatively new long-acting sulfonamide preparation, sulfamethoxazole, readily meets some of the criteria of a desirable form of therapy. A very low incidence of side effects has been reported⁹⁻¹¹

(Table I). Dosage is convenient and cost is relatively low. However, earlier sulfonamide preparations have proved to be inadequate in the treatment of hemolytic streptococcal infection.

Table I

Experience With Sulfamethoxazole Against Hemolytic Streptococcus

		No. of Pa- ents	No.	Cleared of Strep	No. with Side Effects
Elia9		98	96	(98%)*	35/339† (10%)
Peters10		200		(68.5%)**	9 (4.5%)
Braden ¹¹		90	78	(87%)***	2 (2.2%)
Jackson		82		(65%)	3/410† (.7%)
(Current	Study)				

- * Length of therapy was not indicated. Dosage was higher than used by other workers. This may account for both the better results and the higher incidence of side effects some of which sounded ominous.
- ** 14 days of therapy.
- *** Braden reported an additional 6% were cleared with an additional 7 days of therapy.
 - † The streptococcus study was part of a larger series and side effects reported were in total patients taking the drug.

Although other preparations frequently give a good clinical response, 6,12 it has been shown by Morris, et al.6 that the organism is not eliminated from the throat, and the incidence of subsequent rheumatic fever is not reduced by the treatment. There has been considerable evidence that sulfamethoxazole is more effective against hemolytic streptococcal disease than previous sulfa preparations 9-11 (Table I).

With these considerations in mind, we designed this study to determine whether or not sulfamethoxazole is an adequate form of therapy for type A beta hemolytic streptococcal infection under the conditions of a rural private medical practice.

Methods and Materials

Realizing the importance of positive identification followed by adequate treatment of type A beta hemolytic streptococcal pharyngitis, we have performed throat cultures on all patients with evidence of respiratory infection, using the filter paper mailer technique as described by Hollinger.¹³ The cultures are then processed by the Northeast Colorado Health Department using Hollinger's modified technique.^{13,14} Type specific identification is made by the fluorescein antibody

method described by Moody, et al.¹⁵ and only type A beta hemolytic organisms are reported.*

During this study all patients with clinical indications for antibacterial therapy were given, on their initial visit, either penicillin or sulfametho-xazole on an alternating basis. This alternation was strictly adhered to except for patients with a history of penicillin or sulfa sensitivity. Sulfamethoxazole dosage was calculated on the basis of 15 to 25 mg./lb. initial dose and daily dose (½ daily dose q. 12 h.). Older children and adults were given 0.5 gm. tablets and younger children a 10% suspension. The penicillin used was penicillin G buffered 400,000 unit tablets which were divided and crushed for smaller children. Table II shows the dosage schedule.

Table II

Dosage Schedules

Sulfamethoxa	zole	
Patient Size	Initial Dose	Maintenance
16 to 30#		½8 gm. (½4 tsp.) b.i.d. ½4 gm. (½ tsp.) b.i.d. ½2 gm. (1 tsp.) b.i.d. ¾4 gm. b.i.d. 1 gm. b.i.d.
Penicillin G	Buffered	
£	1 g e	Dose
1-10	1 year years 10 years	100,000 q.i.d. 200,000 q.i.d. 400,000 q.i.d.

Therapy was continued routinely for four days, but patients with positive culture returned to the office for a second culture and an additional six days of medication. Three days following the completion of this additional therapy, a follow-up culture was taken on all patients. Patients who were cultured but not started on antibacterial therapy initially, and all family contacts whose cultures were reported as positive were started on therapy when culture results were reported. Therapy and follow-up were the same as described above.

Because of the many variables involved it was important to run a simultaneous control group using a drug of known effectiveness such as penicillin G. We did not believe that a double-blind study was indicated because the only results to be tabulated were the culture reports which were strictly objective since the laboratory had no in-

^{*}This routine culturing program has been made possible by the combined efforts of the Colorado Heart Asociation, Dr. David McGuire of the State Health Dept., the Northeast Colorado Health Dept., and Mr. Pat Freeberg, their bacteriologist. We gratefully acknowledge their assistance.

dication of which treatment, if any, was being given the patient. Table III shows the breakdown of patients who were started on therapy according to the therapy used and by numbers cultured.

Table III
Pre-Treatment Summary

	Total Patients Cultured	Sulfamethoxazole Treated Group	Penicillin Treated Group
Total	821	410	411
Initial Culture Positive	206	100	106
Included In Study Dropped*	169	82	87
From Study	37	18	19

^{*} Dropped from study because of failure to complete treatment or failure to return for the third culture.

In general, patient cooperation was excellent but due to occasional uncooperative patients, communication problems, and transportation difficulties in a rural community follow-up cultures and institution of additional medication were frequently not done on schedule. These cases were not dropped from the study because these are the problems we deal with in everyday practice, and they applied alike to both treatment groups.

The only cases dropped from the study were those who did not get the final culture. We believe the medication was in general taken as directed but that the sulfamethoxazole was taken more reliably than the penicillin because of the more convenient dosage schedule and the more convenient and highly palatable pediatric preparation.

Results

Table IV summarizes the results of therapy in both the sulfamethoxazole-treated and the penicillin-treated control groups. Bacteriologic conversion rates for both groups was lower than generally reported in the literature but the previously mentioned realities of rural practice probably account for this. Our general impression was that the clinical response to both drugs was usually adequate and about equal even though the conversion rate was higher with the penicillin than with sulfamethoxazole.

During this study we had only one instance of rheumatic manifestation: this was a boy with glomerulonephritis who, one month previously, had been treated elsewhere for a sore throat, with penicillin for a few days. When first seen by our group his nephritis was evident and his throat culture was positive.

Side Effects

Only three patients in each group reported minor side effects. Vomiting, headache and hives were the three reactions to penicillin reported. Three patients taking sulfamethoxazole developed minor skin rashes but they all completed therapy. This represents an incidence of 0.7 per cent which is much lower than reported in previous studies. Poor reporting by the patients probably accounts for some error but we do not believe this was a very large error, and that the true incidence of side effects in our study was very low.

Comment

This and previous studies (Table I) certainly indicate that sulfamethoxazole is much more effective against type A beta hemolytic streptococcal infection than older sulfonamides, and appears to be as good as the tetracylines (55 to 76 per cent). 16-18 However, penicillin and erythromycin because of their high bacterial conversion rates are still the therapy of choice. 1,6.8 Taking into consideration convenience in dosage, low incidence of side effects, and lower cost, we believe sulfa-

Table IV
Summary of Treatment Results

	Culture #2					Culture Culture #3 #2 & #3		
	Total	Pos.	Neg.	Not* Done	Pos.	Neg.	Both Neg.	
Sulfamethoxazole group	82	29 ** (37%)	48 ** (63%)	5	29 (35%)	53 (65%)	35** (46%)	
Penicillin group	87	10 (15%)	59 (85%)	18	9 (10%)	78 (90%)	56 (81%)	

*Some of the #2 cultures were not taken because of too great an inconvenience for the patient. Every case included in the study had the #3 culture.

**Percentages in these columns calculated on the total of those who had both a #2 and #3 culture.

methoxazole makes the best third choice for treatment of streptococcal infection.

Since increased daily dosage used by Elia9 was associated with a higher incidence of side effects (Table I), we believe longer term therapy as a means of improving the conversion rate should be investigated. However, this will reduce the advantages of sulfonamide therapy because the incidence of side effects may increase, cost is bound to increase, and patient acceptance of dosage schedule to decrease. Possibly a more productive line of investigation would be a pharmacological research into the reasons why this particular sulfonamide is more effective than previous preparations.

Summary

In a controlled study, 169 patients with type A beta hemolytic streptococcal respiratory infection were treated for 10 days with sulfamethoxazole or penicillin G, and follow-up cultures were compared. Follow-up cultures were negative in 53 (65 per cent) of 82 sulfamethoxazole-treated patients and in 78 (90 per cent) of 87 penicillintreated patients. Clinically, patients responded well to both forms of therapy and side effects were less than one per cent, and minor.

It is concluded that in treatment of type A beta hemolytic streptococcal disease:

- 1) Penicillin or erythromycin is still preferred
- 2) Sulfamethoxazole shows moderate effective-

ness and is probably the best third choice at this time.

3) Pharmacological investigation into why sulfamethoxazole is more effective than previous sulfonamide preparations should be undertaken.

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Southwestern Medicine regrets the death on May 24, 1963, of Dr. M. Nathan Kleban of El Paso. At the time of his death Dr. Kleban was President of District One of the Texas Medical Association.

Modes of Treatment for Rattlesnake Bite

W. E. LOCKHART, M.D., Alpine, Texas

Rattlesnake bite is an emergency, treatment of which has been confused by want of practical, precise fact and an excess of personal opinion based on limited experience and uncontrolled study. Dr. Oliver Wendell Holmes, the great physician and poet, returning from Europe once remarked: "We should never accept opinion when we can get fact". Our purpose here is not to champion any old or new treatment for rattlesnake bite but to evaluate all modes of treatment with special emphasis on detail, and with practical application of the modes in mind as the catastrophe is dealt with in practice.

There are many variables to confuse the problem, chief among which are the amount and the activity of the venom actually injected by the fangs of the snake. An older and larger snake of a given species may have more venom or more deadly venom, if this was not lost immediately prior to the bite, but a small snake or a small species may also have deadly venom. Therefore, no rattlesnake bite should be considered lightly. Time elapsed since the bite is an important variable in treatment.

Immediately after the bite a tourniquet should be applied proximal to the bite. This is universally accepted for the purpose of preventing or delaying the intravascular spread of the venom with resulting hemolysis, anaphylaxis or possible neuro-toxic effects. Opinion differs but we think the tourniquet should be tight enough to obstruct venous and lymphatic return flow but not tight enough to damage blood vessels and cripple subsequent vascularity of the wound, which is of extreme importance.

In many instances a tourniquet has done more harm than good. How often in medicine has a method in the light of subsequent understanding proved to be exactly the opposite of its well intended and strongly supported purpose! Of utmost importance is the question, how long should a tourniquet remain in place?

It is doubtful if a tourniquet serves any valuable purpose after one hour: Therefore, the tourniquet should then be removed and not replaced unless evidence develops to indicate that it was preventing intravascular spread of venom; prevention of which outweighs possible damage to blood vessels by the tourniquet.

Immediately after a bite linear incisions about one inch in length in the long axis of the extremity (avoiding blood vessels as much as possible) may be made through the skin and subcutaneum with the hope and purpose of releasing some of the concentrated venom. Opinion differs on this procedure and may depend on the equipment at hand and skill of the operator, for needless harm has been done by mutilating incisions particularly distant from the fang holes. Incisions may be made with a sharp, clean instrument such as a sterile #11 Bard-Parker blade, which should be in every "snake kit".

Suction may be applied by any clean method but not by the mouth, for this would infect the wound which will become devitalized and susceptible to human, oral bacteria. It is doubtful if incisions or suction serve any useful purpose after one hour has passed.

Immediately after the bite stress should be avoided. The patient should not walk or run a great distance. Rescue transportation should be brought to the patient, and he should be taken to a hospital.

Immediately after the bite, if possible, the extremity should be packed with fresh water ice. Every ranch or farm now has ice cubes in the refrigerator. Among other possible benefits, this refrigeration will numb the pain. Demerol or other morphine derivatives should not be given for pain because the lethal effects of the drug and venom are additive.

Emergency treatment at the hospital may include adrenalin for anaphylaxis. Steroids or antihistamines may have value but do not act promptly enough to avert a fatal issue. Tracheostomy, oxygen and artificial respiration may be required by neuro-toxic asphyxia, and blood transfusions may be required by hemolysis. Within the first hour after the bite under surgical conditions incisions may be made into each fang hole extending through the deep fascia with the hope and purpose of releasing some of the concentrated venom and with the purpose of releasing tension of the deep fascia, anticipating swelling in the wound. Previously existing incisions should be cleaned by use of sterile saline solution in the wound, followed by Phisohex, followed by more saline.

Allergy to horse serum must be determined by history, scratch test, ophthalmic test and intracutaneous test (in that order) before antivenin is given with foreknowledge that about 50 per cent of people react unfavorably to horse serum, and some patients have died of horse serum anaphylaxis with the death attributed to the snake bite. There are medico-legal reasons why antivenin must be given in the absence of allergy, and antivenin should be given in adequate dose.

We give the antivenin intramuscularly and question the wisdom of intravenous or local injections of the horse serum. Available antivenin is a multiple antibody from antigens of many species and, unfortunately, venom has considerable species specificity. This detracts from the value of available antivenin.

Since 90 per cent of rattlesnake bites occur on the foreleg or forearm, cryotherapy or refrigeration treatment is practical in most cases as first recommended by Dr. Stahnke of Arizona. The method is controversial but, as the drunk in the gutter said to the old lady reviling him: "Don't knock it if you ain't tried it!" The purpose of this mode is to lower the temperature of the tissues

and the venom to a few degrees above freezing so that the proteolytic enzymes will be inhibited while warm blood flowing into the wound area neutralizes and destroys the venom.

Like all surgical procedures cryotherapy must be applied on proper indication and with careful attention to detail. To be effective, the method should be started early and should be continued for 48 to 96 hours. A patient who is unusually sensitive to cold (Raynaud's Disease) or who has or develops vascular insufficiency should not have cryotherapy, and the circulation in the extremity must be watched carefully during treatment. Certainly no tourniquet should be in place during cryotherapy, and if a tourniquet has been used for more than one hour, cryotherapy is not recommended.

Careful attention to detail includes the use of fresh water ice with no salt added, for this would result in freezing of the tissues and frostbite. One method of applying the ice-water mixture to extremities is to use a 10 foot length of thin plastic tubing such as is available at all dry cleaners. Invert the tubing one time to double its strength, and roll it up as you would stockinette to apply to the leg or arm. When the double-thickness plastic reaches the groin or arm-pit, begin packing cracked ice around the extremity as the rolled plastic is returned outside the ice to the foot or hand.

The ends of the plastic are closed with rubber bands so that it is easy to open up and look at the foot or hand and feel the pulse. This also permits draining off excessive water and replacement of ice. The plastic protects the skin from maceration and keeps the bed from getting wet. The remainder of the patient's body, as Dr. Stahnke emphasizes, must be kept uncomfortably warm by the use of an electric blanket. This is to make sure that warm blood from the general circulation can flow into the wounded tissues to act on the venom, while the tissues are kept above freezing temperature. There must be no impairment of circulation.

Relief of pain provided by refrigeration would make the method worth while even if no other benefit were obtained. Swelling also is prevented. Sedation may be required. The objective in all modes of therapy is to prevent damage to irreplaceable muscle, nerve and vascular tissue by the proteolytic enzymes of the venom. Toxic blebs in the skin after rattlesnake bite should not be confused with similar blebs which occur in gangrene.

Infection in the devitalized wound may be prevented or controlled by antibiotics. Penicillin and streptomycin are the antibiotics most used, and chloromycetin is added if progressive infection is manifest in the wound. Tetanus toxoid is given

to prevent tetanus.

Any rattlesnake bite should be taken seriously. The mild consequences observed after some bites may be attributed to the injection of only small amounts or possibly inactive venom by the snake fang. We need an improved venom antibody that is free of the disadvantages of horse serum, is more potent and more specific for the various species of rattlesnake.

Anything But Medicine*

WILL HARRISON
Syndicated Columnist
Santa Fe

A number of doctors gained fame in public affairs in the very early days of New Mexico, but in the half century of statehood hardly an M.D. has shown himself in politics.

There was a Dr. C. L. Hill of Dona Ana who was the Republican candidate for Governor in 1922, but he was a dentist. Dr. J. Q. Thaxton of Raton, a chiropractor, served in the legislature back in the 1930's, and he was recently appointed to the state highway commission.

That doctors would do well in New Mexico politics is attested by the success of the young M.D. from Albuquerque who ran in the recent election. He didn't win the election but he won much respect and admiration. Doctors are glamorous or they wouldn't have gone so far in replacing cowboys on popular television shows.

Of those famous early day doctors in New Mexico only one attained distinction through medicine. The others gained fame in war, politics, commerce, and in historical and literary fields.

Dr. Jonathan Letterman

Dr. Jonathan Letterman, an early day surgeon, nominated in October 1947, as the "all-time, all-American medical officer", for whom the great Letterman General Hospital in San Francisco is named, came to New Mexico in 1854 and served

at Fort Union near Las Vegas, Fort Defiance near Gallup, with the army garrison at Albuquerque, and at other military points in New Mexico until the outbreak of the Civil War.

Dr. Letterman wrote one of the first reports on the Navajo people after the American occupation of this territory. It was a document which for many years influenced Navajo policy in the Federal government and it contained much valuable information which is important to this day.

But he also said that the Navajos were ignorant of their origin, had no tribal government worthy of the name, had no religion, and that their songs, chants and tribal dances were meaningless.

Twenty-five years after Dr. Letterman wrote his report for the Smithsonian Institution, Dr. Washington Matthews was appointed assistant army surgeon at Fort Defiance in the Navajo country. Dr. Matthews made a lasting place for himself in the literary history of the southwest by disproving much of what Dr. Letterman had written earlier about the Navajo Indians.

He wrote that the Navajos had a song for almost every situation in life; that their compositions abounded in poetic figures of speech; that the men were talented composers and singers.

Dr. Matthews, a native of Dublin, Ireland, wrote the Navajo Silversmith, 1883; Navajo Weav-

^{*}Abstract of a talk given at meeting of County Officers of N. M. Medical Society, Santa Fe, Jan. 19, 1963.

ers, 1884; The Mountain Chant, 1887; and the monumental Night Chant, A Navajo Ceremony, 1902.

Army Medical Service

Dr. Letterman gained his great renown by revolutionizing the army medical service. He discontinued the use of civilian doctors and nurses working by contract on the battlefields, reorganized the ambulance service, established field hospitals, and was credited with saving the lives of thousands of wounded soldiers. Dr. Letterman's system in its entirety was adopted by the Army of the Potomac in general orders issued by General McClellan on Aug. 2, 1862, and subsequently provided the framework for future military organization in the United States, Several countries in Europe, notably Germany, adopted the Letterman plan. Dr. Letterman truly was one of the great figures in American medicine although his field was that of military organization.

Dr. Letterman's daughters, Catherine and Madeline Letterman, lived in Albuquerque until their death in 1957. Miss Catherine died at the age of 95, and six months later Miss Madeline passed on at the age of 93.

In the chamber of the House of Representatives at the state capitol are two bronze busts of figures great in the history of territorial New Mexico.

One is of J. Francisco Chaves, spelled with an "s", the same as the county of Chaves which was named for him. His fame in politics, in war, in the Congress of the United States and the Senate of New Mexico is such that it is not commonly known he was a doctor of medicine.

He was a member of one of New Mexico's wealthiest and most influential families. He attended St. Louis University at St. Louis, Missouri, and studied medicine in the New York College of Physicians and Surgeons.

Dr. J. Francisco Chaves' widowed mother married Territorial Governor Henry Connelly who served as New Mexico's Civil War governor. Governor Connelly won such renown as a political figure and prince of commerce in Mexican trade that it is not commonly remembered that he also was a doctor of medicine.

When the First Regiment of New Mexico Volunteers was organized for service in the Civil War, Dr. Connelly, the Governor, appointed his stepson, Dr. J. Francisco Chaves, a major in the regiment. Colonel Kit Carson, commander of the regiment, promoted him to lieutenant colonel. Colonel Chaves was distinguished for bravery in the battle of Val Verde and in action against the Navajos in the Fort Wingate area near Gallup.

Late in the war he differed with General Carleton, commander of the department of New Mexico, on political matters and resigned from the army to go into politics. He was elected delegate in Congress from New Mexico in 1864 for a two-year term and was president of the Council in the New Mexico Legislature for eight sessions. The old Council was the present State Senate.

Like many of those early doctors who came to New Mexico, Dr. J. Francisco Chaves did not make a living in the practice of medicine. After the war he studied law and became district attorney at Albuquerque, where he gained fame for the vigor of prosecutions in criminal cases.

Prominent for decades in the rough and tumble of New Mexico politics, Chaves was shot and killed in an isolated cabin at Pinos Wells, in what is presently Torrance County, on the night of Nov. 26, 1904.

The talk at the time was that higher-ups in New Mexico politics had obtained in the territorial legislature a pardon for a life-timer, and had promised him immunity from prosecution in exchange for an agreement to kill Chaves.

The 1905 legislature authorized a reward of \$2,500 for the arrest and conviction of the person who assassinated Colonel Chaves and for the arrest of the accomplices. The reward was never claimed, and the identity of the murderer remains a mystery to this day.

The same legislature appropriated \$1,000 for the bronze bust of Colonel Chaves that is displayed in the legislature today.

Did Not Practice Medicine

Like many of the very early doctors, neither Governor Connelly nor Colonel Chaves practiced medicine except in emergencies. In that period doctors couldn't make a living patching gunshot wounds of penniless outlaws and adventurers.

Dr. Henry F. Hoyt of Minnesota, who studied at the Rush Medical School in Chicago, rode into New Mexico in 1878 on a white horse given to him by William H. Bonney, who was known as Billy the Kid, in consideration of the doctor's treatment of a gunshot wound suffered by one of the men in Billy the Kid's group. The group was driving a band of horses, gathered in New Mexico, across the state line into Texas, when one was struck in the hip by a pistol shot.

Dr. Hoyt remained many years in New Mexico and survived to write the interesting and informative book, *Frontier Doctor*, which was published in 1929.

Dr. Hoyt worked as a doctor, but made the money to meet his living expenses by working at many other things. As a surveyor he laid out the municipal boundaries of the city of Las Vegas. He was an assistant postmaster and often a cowboy, which didn't pay much money but provided three meals a day.

Dr. V. K. Adams of Raton, a competent authority on medical history of New Mexico, said in an address to a medical group in Colorado in 1949 that the early doctors could not make a living by the practice of medicine alone so they opened the village drug store or the village hotel. Some became cattlemen and horse breeders.

Dr. Adams says that in 1535, almost a 100 years before the landing of the Pilgrim fathers, Cabeza de Baca, who had been shipwrecked on the coast of Florida, made his way to what is now the southeastern corner of New Mexico and was called upon to perform a surgical operation on an Indian who was bothered with an arrow head in his arm. The New Mexico operation was the first case of surgery on record within the present limits of the United States.

First Surgeon

The Conquistador Coronado brought the first surgeon to New Mexico in 1540, but soon wished he had left him at home.

Castenada, the historian, wrote:

"The Indians had wounded close to 100 of our men with arrows, of whom some died later because of the inefficient care of a poor surgeon who was with the army. Coronado was wounded, but the surgeon who attended him was a newsmonger and plotted secretly with some soldiers to induce Coronado to give up the search for the Gran Quivira and return to New Spain."

The term newsmonger means a gossip, or a tale bearer. Coronado soon got rid of the gossipy doctor and turned over the medical duties to Franciscan monks who were with the expedition.

Dr. Adams named Cristobal Larranaga as the first doctor to settle in New Mexico, He came in 1792.

In 1804, just four years after the first vaccination against smallpox in Philadelphia, Dr. Larranaga was vaccinating in every town and hamlet from Santa Fe to El Paso.

The first American physician came to New Mexico in 1805 with Lieutenant Zebulon Pike, a Dr. Robinson. He was called upon to administer to the governor of Santa Fe, Col. Don Fernando Chacon, who was suffering from dropsy. The governor took an intense dislike to Dr. Robinson, whose treatment seemed peculiar to him, and the doc was lucky to get out of the area alive.

In 1827 Dr. David Waldo became the first American doctor to settle in New Mexico. His descendants are prominent in New Mexico today, among them U.S. Judge Waldo Rogers of Albuquerque.

Josiah Gregg, who became an important historian of his period, came in over the Santa Fe Trail in 1831.

It is not commonly known that he was a man of medicine, but he was far too busy curing himself to cure others. He holds the distinction of being the first doctor who suggested the climate of New Mexico for aiding tuberculosis patients. He himself was cured of tuberculosis in New Mexico sunshine, and lived to record his observations of life in the early southwest that stand today as a great scholastic contribution of the period.

Voices of Spring

One of the most delightful passages of the Old Testament appears in the "Song of Solomon". It reads, ". . . for lo, the winter is past, the rain is over and gone, the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land".

Urged along by the immutabilities of Newtonian physics, the planet has once again gone full circle and this, the happiest equinox, has been heralded by all the customary signs which so regularly cheer and reassure the human heart. The botanical manifestations of bloom and leaf have proved again that the lowly chlorophyll cycle survives, even though the winter's dreariness made even that prospect seem unlikely; consequently, there now appear various zoologic phenomena most of which have been celebrated in story, song and verse.

We make passing but by no means perfunctory obeisance to such familiars as bird-song, bee-hum, lawnmower-whirr, and baseball-umpire-stentorian, and proceed to recognize the measured and modulated tones of a zoologic indigent which flour-ishes predominently in the spring.

Those measured and well modulated tones are readily indentified by any knowledgeable "spring watcher" as the distinctive song of the guest speakers of the medical program. And, perforce, wherever that gladsome song is heard, there the gregarious species of physician and surgeon will foregather in the annual rite of the medical meeting.

Songster

Peripatetic rather than migratory, this particular songster appears in response to the call of his hosts rather than in conformity to any inborn biologic rhythms. His flight is attended by greater effort in population than that of the whooping crane, and fatigue in execution approaching that of the phalarope. For his trumpheted arrival is only the consummation of either months in the laboratory or nights at the desk—and, in many cases, of both.

With cheerful readiness, following a buffeting, bruising flight amidst the touted luxuries of "modern air travel", he delivers himself of his wisdom gained by labor and systematized by searching thoughts and thereby proves a boon to his hosts, fellow physicians wont to combine strenuous hospitality with somewhat critically questioning minds

Lobby and foyer talks on these occasions seem to dwell largely on "tips". "gems", and "pearls", somewhat reminiscent of the harried student feverishly casting about for that extra tidbit of information to aid him through a quiz. (Hardly a bird among us so ancient as to have forgot those fledgeling days!). Yet, more useful than these rags and patches, these ballads, songs and snatches, is the refreshing opportunity to see and hear the disciplined mind of the scholar and teacher, restrained as it is by daily confrontation with the humbling fundamentals of truth and the forbidden outer limits of established knowledge.

It is in the contact with such systematized knowledge that the clinician gains his greatest benefit from the appearance of the guest speaker; the enforced recollection of basic concepts, once learned and now loosely remembered, and the acquisition of new concepts for a sharpening of the wit, and a reinforcement of the scientific underpinning of all clinical practice.

Wherefore, welcome, sweet bird of spring—be our guest.

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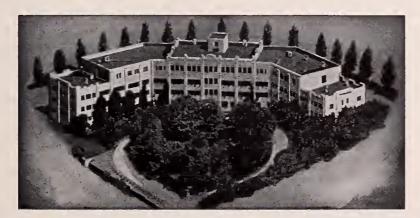
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*Roseman, E.: Neurology 11:912, 1961.

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Diagnosis: Functional diarrhea Number stools per day: 6-8	
Diametrian: 4 days	
Prior Treatment: Paregoric Prior Treatment: Paregoric Dosage: 5 mg. q.i.d. Results: ExcellentComplete relief	
Side Effects: None Comments and Clinical Appraisal: Complete, prompt relief	1

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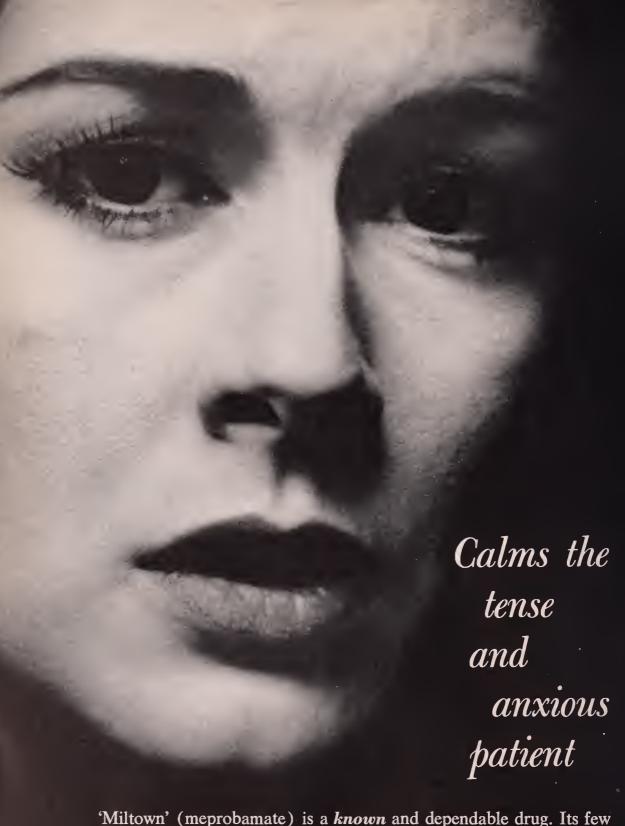
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1. Weingarten, 8.; Weiss, J., and Simon, M.: A Clinical Evaluation of o New Antidiarrheal Agent, Amer. J. Gastraent, 35:628-633 (June) 1961. 2. Hock, C. W.: Relief of Diarrhea with Diphenaylate Hydrochloride (Lamatil), J. Med. Ass. Georgio 50:485-488 (Oct.) 1961.

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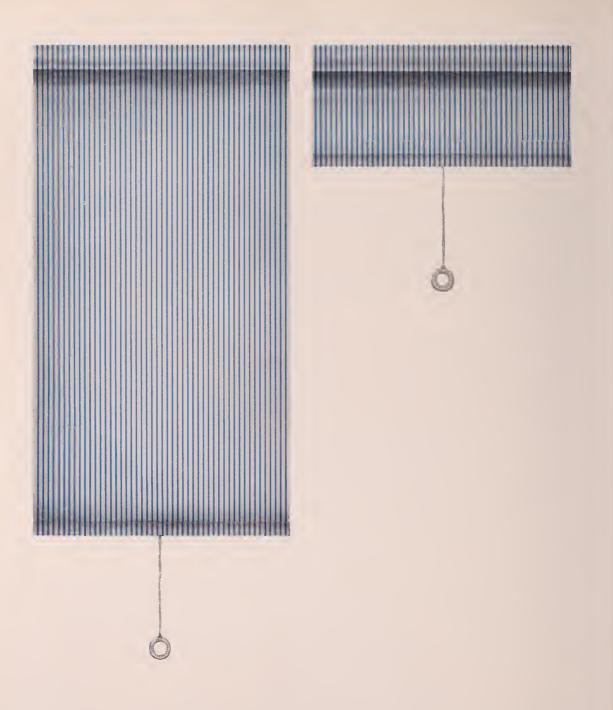
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Congress of Neurological Surgeons, 13th Annual Meeting, Denver Hilton Hotel, Denver, Oct. 9-12, 1963.

University of Texas Postgraduate School of Medicine, El Paso Division, Postgraduate Course, "Emotional Problems of the Teenager," El Paso County Medical Society Turner Home. 1301 Montana Avenue, El Paso, Oct. 13, 1963.

American Cancer Society, 1963 Scientific Session, A Conference on Unusual Forms and Aspects of Cancer in Man, Biltmore Hotel, New York, Oct. 21, 22, 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southwestern Medical Association, 45th Annual Meeting, Holiday Inn, El Paso, Nov. 14-16, 1963.



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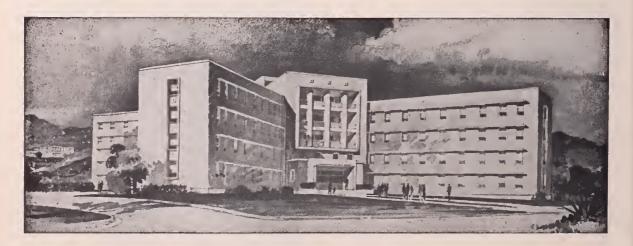
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By Albert E. Ritt, M.D., St. Paul, Minn., President of the American Academy of General Practice

Iron Deficiency Anemia Page 284

By Fredric Damrau, New York; and Ben E. Greenwell, Ph.D., Baudette, Minn.

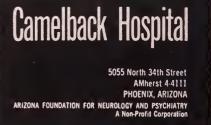
Interim meeting of the New Mexico Medical Society with sessions of the House of Delegates will be held in conjunction with the 45th annual meeting of the Southwestern Medical Association, El Paso, Texas, Nov. 14-16, 1963.



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"Accentuate the Positive . . . "*

ALBERT E. RITT, M.D., St. Paul, Minn.

President, American Academy of General Practice

I suppose one of the greatest interests we, the general practitioners, and the public, should have today would be in the alarming disproportion existing in the ratio of men entering general practice and those entering specialties, research and teaching. It has been determined that currently this ratio stands at approximately one to one, general practitioners to specialists. To understand more fully this disproportion, one must of necessity attempt to background this ratio with some concrete supporting evidence.

I would, therefore, introduce these figures to show you the possible areas of conflict leading to this imbalance. Let us, for a moment, review the sources of funds upon which a teaching center operates: 37.2 per cent of these funds are derived through federal agencies—30 per cent are derived through private endowment, alumni contributions and kindred donations—15.6 per cent come from state and regional contributions—15 per cent are those developed through tuition and community support. It is understandable from the above that faculty members are not necessarily sought in particular relationship to the needs of the school, but rather to their grant-obtaining capabilities.

It takes a tremendous amount of money to support the construction needs of research built into

our teaching centers. It is estimated that we will need five to 20 new medical schools in the next 10 years. One can readily see that there is a great need for adequate student laboratories and class rooms if our teaching centers are to supply the numbers of graduates to support an expanding population. This population expansion is calculated in the realm of approximately 2,000,000 people a year.

The current ratio of physician to population has been computed at something aproximating one physician to 1750 of the population; if and unless our universities are able to provide increased numbers of doctors, it is understandable with the population explosion anticipated that we could become dangerously close to becoming completely undermanned. Our existing ratio of approximately one doctor for each 1750 individuals could, unless the program for physician expansion improves, easily approach that of one physician for each 2,500 to 3,000 of population. The high quality of medical care for which this country is noted would, under these circumstances, find itself in serious jeopardy.

Research Funds

Returning momentarily to the high proportion of funds earmarked for research, one finds little wonder that the professor finds the student who indicates a leaning toward research or academic affiliation more interesting. Favoritism precludes to areas completely away from general practice. One can see from the foregoing how the academic breach widens and that research drains from that which is actually a community need.

^{*}Presented at the annual meeting of the New Mexico Chapter of the American Academy of General Practice and sixth annual Ruidoso Summer Clinic, Ruidoso, N. M., July 15-18, 1963.

Schools have an obligation to train students to provide for the needs of a state and in its community sub-divisions. Responsibilities must be graduated under competent clinical supervision. Patient-doctor relationships must be nurtured and the conditions as found in the day to day practice of medicine must be simulated. Training must be provided so that each student is equipped to render unqualified care and so that hospitals will not establish artificial barriers, and so that administration boards will not read or write artifacts into their plans of operation.

Hospital certification should be premised upon the capacity of the care programs and the ability of the hospital to provide health care for those seeking admission. No hospital should be accredited where there are arbitrary discriminations as to rank, certification; or which denies advancement through in-hospital training, or which establishes barriers in surgical assisting.

I sincerely believe that a recent action of the House of Delegates of the American Medical Association in session in Atlantic City on June 20th of this year in approving a resolution relating to the shortage of general practitioners took a forward step in favor of the American public, and the needs which the American Academy of General Practice and others have recognized for a considerable period of time. In supporting this resolution, the House of Delegates instructed the Board of Trustees to utilize all facilities at its command to:

"Inform the medical schools of the shortage of general practitioners and request their cooperation in exposing medical students to general practice by lectures, preceptor programs and clinical instructors who are general practitioners.

"To inform the state medical associations of the need to emphasize general practice training and to ask these association members to encourage students to go into general practice."

Role of Doctor

Too few students come through their medical school years with a wholesome image as to that which lies before them. Many are confused and disorganized and wonder how they will fit into the total health concept. It would seem, therefore, that the years spent in our educational process need redefining as to the role of the doctor and the needs he is to fill in our communities.

Without a doubt the perspectives gained at all levels of education are determining factors which mould student sentiment.

Since 1958 there has been a decided swing toward the academic or teaching side of medicine. The "affiliated internship" has been responsible to a very great degree for this influence. In this association about 65 per cent of these interns show a primary interest for teaching or research. Can one possibly know about general practice if he has no given general practice orientation or exposure? Can one possibly appreciate or sense the rewards if this type of dedicated service is deprecated?

How can teachers even talk about something they themselves have never known—much less, care to know, or understand? Wouldn't you agree that in fairness, if we're going to develop an educated person, we should give him/her the benefit of a complete education, and that our mdical school faculties need reorganization as to whom best qualifies in this complete educational process?

The entire process of education becomes more difficult as the struggle for faculty recognition becomes lost in inescapable hostilities. The breach widens, therefore, between the schools and the clinical practitioner.

Medical schools must recognize their responsibility to fulfill the needs of their communities. They must recognize the professional infancy of their students in moulding educational patterns. They must recognize a sensitive student body who desires the practical, but who is actually scared before he begins.

Realizing that 80 to 90 per cent of those to be trained will function outside the university center, the teacher must re-direct his responsibilities—he must not downgrade the clinician, referring to him as the LMD (Lost Medical Disciple). He must attempt medical school integration. He, the dean or administrative department head, must provide the "assist" needed by the consumer of medical sciences—he should not permit an overbalancing of research, teaching, or specialty orientation.

It must be recognized that research should sustain the quest for the unknown, should stimulate the scholar and be a product of curiosity. It should never equate to status. It is the responsibility, further, of our educational process to restore the M.D. to his rightful position of esteem in the community.

Seventeen years ago the American Academy undertook to establish an organization of American doctors dedicated to preserve the concept of the family doctor. Certain of the building blocks in its foundation have served to securely anchor the super-structure—others need re-evaluation, reemphasizing redefining in the light of present day American medical methods,

Here the Academy must now encourage and assist young men and women in preparing themselves for, and qualifying themselves in, areas of education and training to enable them to be an established entity, that of the General Practitioner.

Without a doubt, these latter two concepts are imposing ones and will challenge our individual and collective ingenuity to the fullest. It is our responsibility to assure the public a continuing availability and a continuing supply of general practitioners. Motivation must begin early in our young men and women—it must be continuous. We must, as an Academy, be a part of the educational stimuli, we must plan and program pre and post-doctoral schedules of training to assure hospital privileges commensurate with the background of training, experience and demonstrated abilities.

Our own critical attitudes, our dissatisfaction, could well motivate a new approach to educational processes as they exist today.

Educational advancement must concern itself not solely with diseases. It must relate disease to the family, the environment and the community. Medical services, as related to the consumer, must therefore not be overbalanced with research and the academic specialty motivation. Medical schools, working in conjunction with the practicing physician, must devise, develop and deliver improved medical care programs. Teacher, researcher, clinician, specialist . . . each has his part—always recognizing the true economic tenet of supply and demand and being ever mindful that we have already created some imbalance.

We know teachers and researchers have quadrupled in the past thirty years. We know there is a maldistribution between urban and rural practitioners. We know there is a shortage of medical graduates and medical schools. We know medical education is costly. We know it is time consuming. We know it takes considerable time and money

to develop a university or college to train men and women effectively. We know, if we don't supply the answers to the medical needs of our nation, the government will.

Objectives

It is my humble opinion that we, the Academy, have come a long way in 17 years. We began with five stated objectives and I believe for the most part all will agree we have accomplished three of these stated objectives:

To put the record straight:

- A. The organization has been established with high standards of education and training.
- B. We have assisted in providing post graduate courses to maintain this education and training.
- C. We have promoted the science and art of medicine in order to preserve the right of free choice by the individual.

We are falling down, however, in our ability to encourage and assist young men and women into the general practice of medicine only because we cannot guarantee them the right of practice in areas of proven ability and competency.

The organization of some 28,000 members gives strength to the needs as we see them. We have established an extremely fine liaison with the Board of Trustees of the American Medical Association. Our name lends prestige to other national medical organizations. We have been able to open doors as a result of the organizational solidarity which we have built into the Academy. Recently we asked the Opinion Research Corporation to make a survey of the Academy. It did among other things establish that:

- A. The American public is satisfied with their medical care program.
- **B.** Three-fourths of the public call their family doctor first.
- C. The public wants competence as opposed to a "bedside manner".
- D. The group image of the profession needs improving.

Few Entering General Practice

Yes, we have reasons to be alarmed. When we review the figures and note that the current na-

tional average of medical graduates entering general practice is now only 18 per cent . . . if our needs are to be filled, the medical schools of this country must increase this percentage to one in the neighborhood of 75 per cent.

Only three universities in this country are graduating approximately 50 per cent of their medical students into general practice. I list with pride the names of Oregon, Tennessee and Kansas as belonging to this somewhat exclusive and select group. I do not believe it unfair to indict the deans, medical educators, and the presidents of our universities for this educational weakness.

Many of these people are so far removed from the actual requirements of our public that they cannot possibly know that we are becoming woefully inadequate, yes, dangerously inadequate, in recognizing the responsibilities that should be theirs as educators. As mentioned before, deans think only in terms of research (associated grants), producing specialists, and in surrounding their educational institutions with those that can add lustre and bring institutional prestige.

The American Medical Association's committee on Medical Practices has stated that students lack interest in general practice because:

- A. Specialty orientation in the medical school is overpowering.
- B. The students are lacking in contact with the true practicing general practitioner. These students lack exposure to the run of the mill illnesses because of a lack of preceptorship experience.
- C. Faculty attitudes have been anything but favorable toward the area of general practice.
- **D.** Deans and teachers alike have been outspoken in their pronouncement that general practice lacks the prestige commonly associated with specialty disciplines and that the road of accomplishment is difficult beyond description.

I believe, further, that if medicine is going to keep pace with other areas of advancing technological skills that our educational institutions must assume a responsibility in streamlining the educational process. Faculties must be developed where teachers and researchers have an interest in patient care. Our schools must return to a proper balance between the academic, the clinical, the re-

search and specialty attitudes. I believe that a regrouping of the management of the Joint Commission on Hospital Accreditation and a method of familiarizing staffs and county societies with the activities of this group will go a long way toward removing artifacts which have arisen as the result of pressure groups and misunderstanding.

Definition

I recognize full well the difficulty confronting the American Academy in attempting to define a general practitioner. It is recognized that the manner of definition varies from community to community; from state to state; and from one geographic area to another. It is recognized that there are certain areas of the country wherein there are extreme limitations imposed upon the general practitioner.

There are other areas in the country where the general practitioner enjoys complete freedoms. We recognize further that the general practitioner as defined today may be entirely changed in concept five, 10 or 20 years hence. What the Long Range Planning Committee attempted to do was to define certain minimum basic situations and areas wherein the general practitioner could function if and provided his training in the university was recognized and supported by the American Medical Association,

In attempting to find a solution to the product of our educational endeavor, we ask ourselves if the preceptorship program is the answer, if the non-affiliated internship is the answer. Are comprehensive care programs the answer... is general practice integration into our teaching programs the answer.

I can say "Yes" perhaps to each of the questions posed, but I can state with certainty and emphatically that there must be curricula updating and revisions in our teaching programs, and that the universities must accept the mandate before them to redirect their activities to graduate more general practitioners. These general practitioners of the future must, by virtue of their training and demonstrated responsibilities, be given the guarantee that the doors of the hospitals will be open to them.

I am sure each of you will agree with me that

general practice is far more than a combination of medicine and pediatrics. I am sure you will agree that it embodies many of the disciplines including those of emergency care, obstetrics, gynecology, orthopedics, otolaryngology, psychiatry, etc. I am sure you will agree that the true general practitioner is an integral and necessary part of community life. I am sure you will agree that he, as opposed to all others, is the one person who can fit the sick pieces of humanity back into their proper perspective in the community.

I am certain you will agree with me that general practice is rewarding in its challenge without comparison to all other phases of medicine . . . that it's frightening, it's fatiguing and it's awe-

some! With the foregoing as accepted concepts, and accepting the tenet that our nation does need more general practitioners, we must now use every conceivable avenue of approach toward the production of the key man in American medicine. We must provide the climate!

All of our efforts must resolve themselves into an amalgamation of the forces to be considered. We began with what seemed an impossible situation. We know the challenges; we know the image; we know the areas of failure. It remains for us to accentuate the positive and get this job done!

1625 University Ave.



NEW OFFICERS—Newly elected officials of the New Mexico Chapter of the American Academy of General Practice, which held its annual meeting in Ruidoso, N. M., July 15 through 18, are Dr. Walter Hopkins, Lovington, president, third from right; Dr. Bram Vanderstok, Ruidoso, president-elect, third from left; Dr. James A. Koch, Albuquerque, vice-president, second from right; and Dr. J. A. Rivas, Belen, re-elected delegate to the National Congress of the American Academy of General Practice, second from left. Others in the photo are Dr. Frederick R. Brown, Roswell, retiring president, new alternate delegate to the AAGP National Congress, left; and Dr. Steve Marshall, Roswell, who continues as a delegate to the AAGP National Congress. Not shown are Dr. Herschel L. Douglas, Tatum, new secretary-treasurer, and Dr. Don Mabray, Albuquerque, new director. Ruidoso will be the site of the 1964 meeting, July 20-23, 1964.

ORIGINAL ARTICLES

Iron Deficiency Anemia

Therapeutic and Prophylactic Use of Ferrous Fumarate Plus Vitamin C in Children, Adult Females and Pregnancy

> Fredric Damrau, M. D., New York Ben E. Greenwell, Ph.D., Baudette, Minn.

Iron deficiency anemia is one of the most common of all human ailments. It may result from excessive blood loss, inadequate iron intake, defective iron absorption, increased iron requirements. or imperfect utilization of iron¹.

Routine hemoglobin determinations in a series of 500 consecutive unselected patients revealed hypochromic anemia in 90 (18 per cent)². These statistics are in accord with general experience.

In pregnancy the over-all incidence of moderate and severe iron deficiency anemia is 20 per cent of all women³. This maternal iron depletion is an etiological factor in the development of hypochromic anemia of infancy⁴, as is the overuse of milk in the diets of infants and children⁵. Statistics show that hypochromic anemia is the most common nutritional deficiency of children in the United States⁶.

Iron Therapy

From ancient times to the present day, iron has been universally recognized as a specific therapy for hypochronic anemia¹. The therapeutic dosage level should supply rather large quantities, sufficient to increase the hemoglobin level one per cent per day in severe cases⁷.

In iron deficiency anemia the response to orally administered iron is almost equal to that following the parenteral route⁸. Unfortunately the use of ordinary iron salts such as ferrous sulfate frequently causes gastric distress, colicky pains and diarrhea⁹. In a group of 27 patients who were found to be

intolerant of the usual iron medications, all complained of nausea, 89 per cent of a burning sensation and abdominal cramps, and 78 per cent of diarrhea¹⁰.

Ferrous Fumarate Plus Vitamin C

The search for an equally effective but better tolerated iron salt culminated in ferrous fumarate. With the use of this salt combined with vitamin C, the present study showed highly satisfactory results in the treatment and prevention of iron deficiency anemia without any gastric irritation or other untoward effects.

Ferrous fumarate is an anhydrous salt of a combination of ferrous iron and fumaric acid containing 33 per cent of elemental iron by weight. It is as effective as other orally administered compounds employed for the treatment of hypochromic anemia but better tolerated than ferrous sulfate or ferrous gluconate. Its acute toxicity in experimental animals is low¹¹.

A comparison of the iron yield from four different ferrous salts shows that ferrous fumarate provides 33 per cent of elemental iron, ferrous sulfate 20 per cent, ferrous lactate 19 per cent and ferrous gluconate 12 per cent¹².

In several independent studies, ferrous fumarate has shown a therapeutic response comparable with that obtained from use of ferrous sulfate and some other organic ferrous salts but the gastro-intestinal side effects have been relatively infrequent¹³⁻¹⁷. Further advantages are the facts that ferrous fu-

marate is virtually tasteless, does not stain the teeth, and is the most stable form of ferrous iron in clinical use.

Vitamin C has been shown to aid in the absorption of iron in anemic patients who respond poorly to iron therapy alone^{18,19}. Addition of ascorbic acid to iron-enriched food increases the absorption of ferrum two or three times^{20,21}.

Anemia due to deficient hematopoiesis is common in cases of vitamin C deficiency and is frequently associated with a lack of dietary iron²². The use of ascorbic acid in conjunction with hematopoietic agents is also recommended in the treatment of megaloblastic anemias²³.

The modus operandi of vitamin C appears to be that of a reducing agent²⁴, thus keeping the ferrous ions in the reduced state and thereby assuring optimal iron absorption.

During pregnancy, the ferrous fumarate and vitamin C combination was used, reinforced by multiple vitamins and minerals for prophylaxis. The present day consensus of medical opinion is that a vitamin-mineral mixture containing the hematopoietic vitamins may be beneficial for the pregnant woman to help her supply the fetus as well as herself; the aged person who cannot eat an adequate diet; the patient with previously diagnosed chronic illness, especially liver disease; and the rapidly growing infant²⁵.

Present Study

The series studied consisted of 155 cases of iron deficiency anemia and 55 cases of pregnancy in which the medication was used prophylactically, divided into three groups as follows:

Group 1: female adults, 62 cases of iron deficiency anemia including 43 pregnant women.

Group 2: children, 93 cases of iron deficiency anemia.

Group 3: prophylactic use in pregnancy, 55 cases.

The medication for Group 1 consisted of tablets containing ferrous fumarate 200 mg, and ascorbic acid 100 mg., two or three tablets daily (therapeutic dosage), supplemented in certain cases by a prenatal formula containing ferrous fumarate 200 mg., ascorbic acid 60 mg. plus other vitamins and minerals (one tablet daily). The children (Group 2) received chewable flavored tablets (do not stain teeth) containing ferrous fumarate 100

mg. and ascorbic acid 50 mg., at a therapeutic dose of three daily. The prophylactic dose for Group 3 consisted of one tablet daily of the prenatal formula mentioned above, providing ferrous fumarate 200 mg. and ascorbic acid 100 mg.*

Results in each group will be considered separately.

The normal hemoglobin range was taken as 14-17 Gm./100 cc. for male adults, 12.8-15.2 Gm./100 cc. for female adults, and 10-18 Gm./100 cc. for children (varying with age)²⁶. During the second and third trimesters of pregnancy, reduced values (range: 10.2-15.0 Gm./100 cc.) are commonly observed²⁷. In evaluating therapeutic results, a minimum gain of 1 Gm./100 cc. was required for classification as significant, in accordance with the prevalent opinion of experienced hematologists²⁸. The instrument used was the Spencer hemoglobinometer.

Female Adult Group

Group 1, the adult group, comprised 62 cases of iron deficiency anemia, including 33 in pregnancy. The average age was 30.9, ranging from 18 to 74.

The dosage was three tablets daily in 32 cases, two tablets daily in 29 cases (11 of whom also received one prenatal tablet daily), and four tablets daily in one case. The medication was continued for periods ranging from one to four months, average 1.9 months.

The initial hemoglobin reading averaged 10.2 Gm./100 cc., ranging from 8.5 to 11.4 Gm.

After medication, the hemoglobin reading averaged 12.1 Gm./100 cc., ranging from 11.0 to 13.8 Gm. Thus there was an average gain of 1.9 Gm./100 cc.

All 62 patients responded with hemoglobin gains, ranging from a minimum of 0.6 Gm./100 cc. to a maximum of 4.3 Gm./100 cc. In 48 cases (77 per cent), the therapeutic response was rated as significant (minimum gain of 1 Gm./100 cc.).

Pediatric Group

Group 2, the pediatric group, comprised 93 cases of iron deficiency anemia, including 49 boys

^{*}Medication used throughout the study was supplied as C-Ron. C-Ron Pediatric and Cal-Ron O.B. tablets by Rowell Laboratories. Inc., Baudette. Minnesota.

and 44 girls. The average age was 4.8 years, ranging from one month to 15 years.

The dosage was three pediatric tablets daily. The medication was continued for periods ranging from one to seven months, average 2.5 months.

The initial hemoglobin reading averaged 9.7 Gm/100 cc., ranging from 6.5 to 11.2 Gm.

After medication, the hemoglobin reading averaged 11.8 Gm./100 cc., ranging from 10.4 to 13.0 Gm. Thus there was an average gain of 2.1 Gm/100 cc.

All 93 children responded with hemoglobin gains, ranging from a minimum of 0.6 Gm./100 cc. to a maximum of 5.4 Gm./100 cc. In 86 cases (92 per cent), the therapeutic response was rated as significant (minimum gain of 1 Gm./100 cc.).

Prophylactic Group

Group 3, the prophylactic group, comprised 55 pregnant women who received one tablet daily of a compound containing ferrous fumarate 200 mg., ascorbic acid 60 mg., and a multivitamin and multimineral prenatal nutrition supplement, for prevention of iron deficiency anemia.

In this group the daily dosage of elemental iron was 66 mg., which is only one-third of the amount required for optimum hemoglobin regeneration in existing iron deficiency anemia²⁹. This dosage proved effective in preventing the anemia in most cases where medication was started early in the first trimester. Larger doses may be required for patients seen for the first time during the second and third trimesters.

It has been reported that the hemoglobin value falls during pregnancy, despite prolonged iron administration, the lowest point being reached at approximately the same stage of pregnancy as in women not given iron³⁰.

Contrary to this report, the patients treated with prophylactic doses of ferrous fumarate plus ascorbic acid (Fe 66 mg. daily) showed an average hemoglobin gain of 1.3 Gm./100 cc. (range 0.4-3.0 Gm.). Although the usual trend in untreated pregnancy is a progressive fall of hemoglobin, all patients showed gains, which were substantial in the majority of cases.

Overall Evaluation

Combining the adult and pediatric groups, in

which therapeutic doses of ferrous fumarate (Fe 200 mg, daily) plus ascorbic acid were administered for an average period of 2.2 months, the series included 155 cases of iron deficiency anemia.

The average hemoglobin reading before treatment was 9.9 Gm/100 cc., ranging from a low of 6.5 Gm. to a high of 11.4 Gm. The average hemoglobin reading after treatment was 11.9 Gm./100 cc., ranging from a low of 10.4 Gm. to a high of 13.8 Gm. Thus there was an average hemoglobin gain of 2.0 Gm./100 cc. for the combined groups, totaling 155 cases of iron deficiency anemia, following treatment with ferrous furnarate plus ascorbic acid.

All patients of this series showed some gain in hemoglobin, ranging from a minimum of 0.6 Gm./100 cc. to a maximum of 5.4 Gm./100 cc. In 143 cases (92 per cent), the therapeutic response was rated as significant (minimum gain of 1 Gm./100 cc.).

There were no complaints of nausea, vomiting, colicky pains, gastrointestinal irritation, constipation, diarrhea, or other digestive upsets resulting from use of the medication.

Summary

In a series of 155 cases of iron deficiency anemia, comprising 62 adults (including 43 pregnant women) and 93 children, treatment with ferrous fumarate (Fe 200 mg. daily) plus vitamin C for an average of 2.2 months gave highly satisfactory results.

All patients showed some hemoglobin gain (range 0.6-5.4 Gm.) and in 143 cases (92 per cent) the therapeutic response was significant (minimum gain of 1 Gm./100 cc.). The average hemoglobin gain for the entire series was 2.0 Gm./100 cc.

In another series of 55 pregnant women, prophylactic use of ferrous fumarate plus vitamin C (Fe 66 mg, daily) prevented the development of hemoglobin deficiency in all cases and produced an average rise of 1.3 Gm./100 cc.

Ferrous fumarate has the highest iron content, is the best tolerated, and gives the greatest therapeutic response of any of the ferrous salts. In combination with vitamin C, its absorption from the duodenum, jejunum and ileum is effectively in-

creased, probably due to the reducing action of ascorbic acid in the intestines which keeps the ferrous ions in the reduced state.

The digestive disturbances which frequently follow use of ferrous sulfate and other iron salts (nausea, vomiting, colicky pain, gastrointestinal irritation, constipation or diarrhea) were notably absent.

2 Tudor City Place

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New NDA

The largest new drug application (NDA) ever submitted by Eli Lilly and Company — all 8,000 pages of it — has been sent to the Food and Drug Administration in Washington. The application covers a drug for use in the psychiatric field.

The NDA is one of the first processed by Lilly under the new FDA regulations issued in accordance with the Drug Amendments of 1962.

It would take one of the FDA reviewing officers fifty eight-hour working days to read the Lilly NDA if he spent only three minutes on each page.

The new drug application contains detailed reports on the new medicine — it chemistry, its activity in animals, its therapeutic action and side-effects in human beings. Formerly summaries of this information were sufficient for the FDA, but now they must be accompanied by individual reports on the use of the drug in each animal and each subject or patient by each investigator.

Some 150 investigators studied the new Lilly drug in 2,170 subjects. The enormous task of analyzing the data was done in part by electronic computer. It was possible to encode the data from 1.888 patients for the computer.

A Lilly spokesman said that the larger NDA does not mean that more clinical work is being done by Lilly but merely that more records and reports are obligatory.

Each copy of the Lilly application stands 34 inches high. The government gets three copies. The company also put together thirteen for its own use and for the use of other organizations, such as the American Medical Association.

If all sixten copies were put into a single stack, it would be 45 feet 4 inches tall.

The Lilly spokesman traced the growth of the new drug applications in recent decades. In 1940, he said, the average NDA was six pages long. By 1950, it was sixty; and by 1960, almost 600 pages. Now it is clear that a 6,000-page application could be the rule rather than the exception.

An NDA for another drug recently investigated by Lilly under the old regulations would have run at least 10,000 pages if the new rules had been in effect.

Lifts depression..



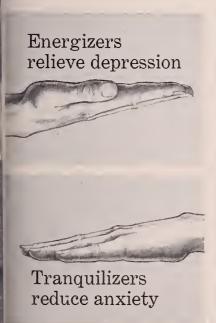
as it calms anxiety

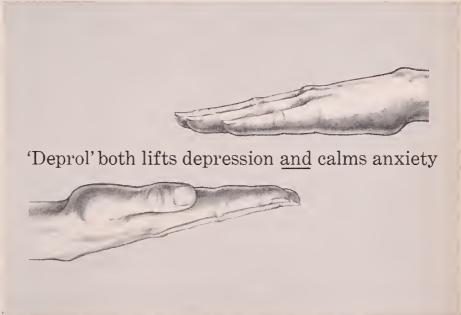
Brightens mood...relaxes tension

Energizers may stimulate the depressed patient, but they often aggravate anxiety and insomnia. Tranquilizers may help the anxious patient, but they often deepen depression and emotional fatigue.

'Deprol' avoids these "seesaw" effects; it relieves both depression and anxiety. Moreover, it does not cause liver damage, psychotic reactions or changes in sexual function.

Slight drowsiness and, rarely, allergic reactions, due to meprobamate, and occasional dizziness or feeling of depersonalization in higher dosage, due to benactyzine, may occur. Meprobamate may increase effects of excessive alcohol. Use with care in patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction. Withdraw gradually after prolonged use at high dosage.





Usual Dosage: 1 tablet q.i.d. May be increased gradually, as needed, to 3 tablets q.i.d.; with establishment of relief, may be reduced gradually to maintenance levels.

'Deprol'

meprobamate 400 mg. + benactyzine 1 mg.







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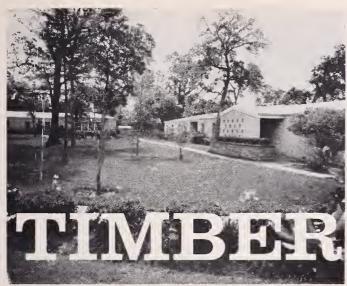


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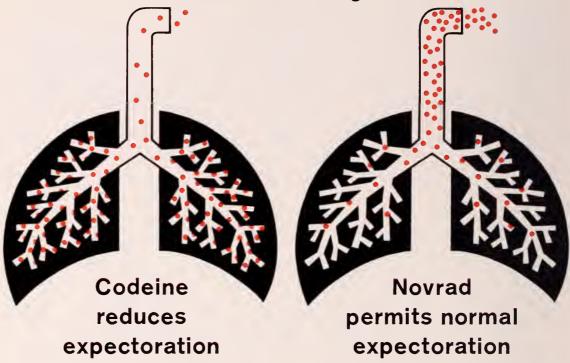
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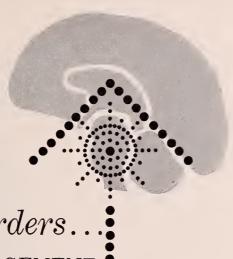
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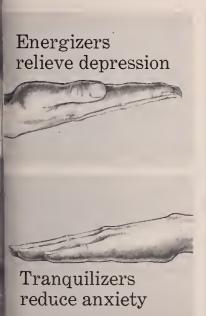


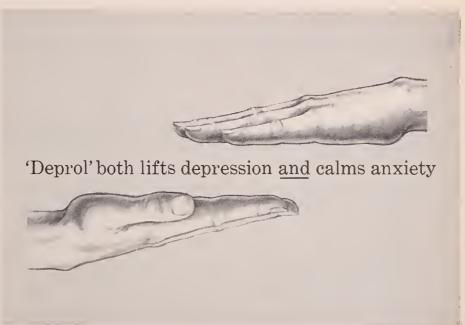
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*Roseman, E.: Neurology 11:912, 1961.

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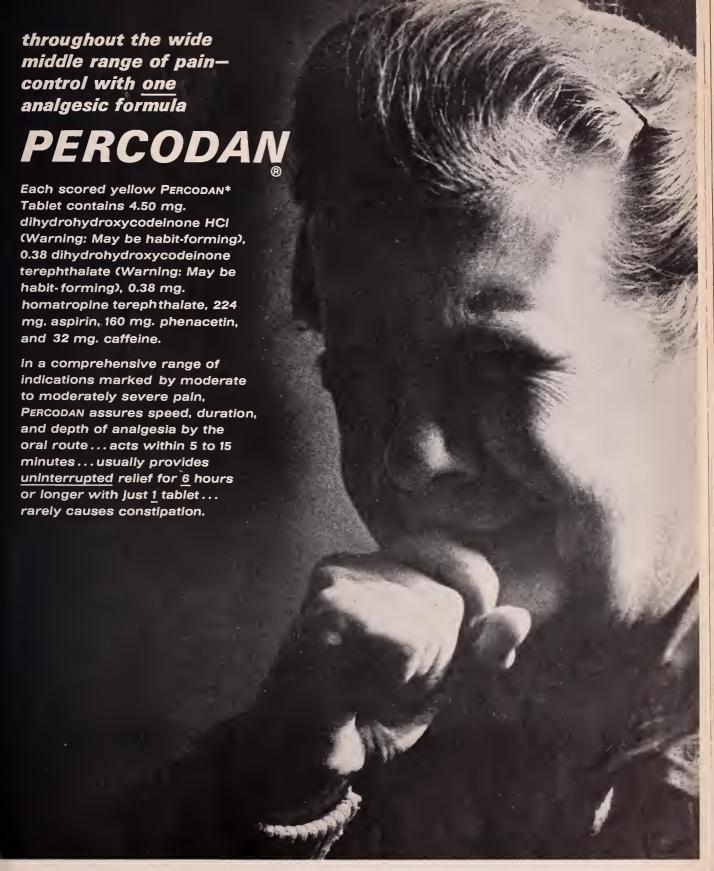
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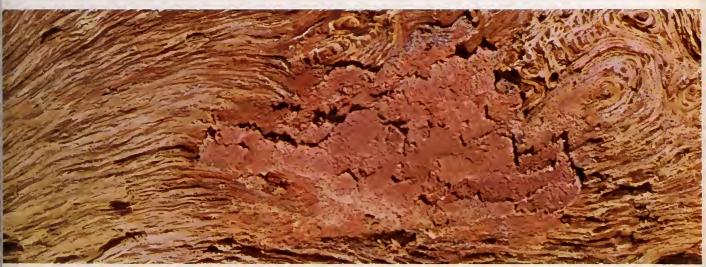
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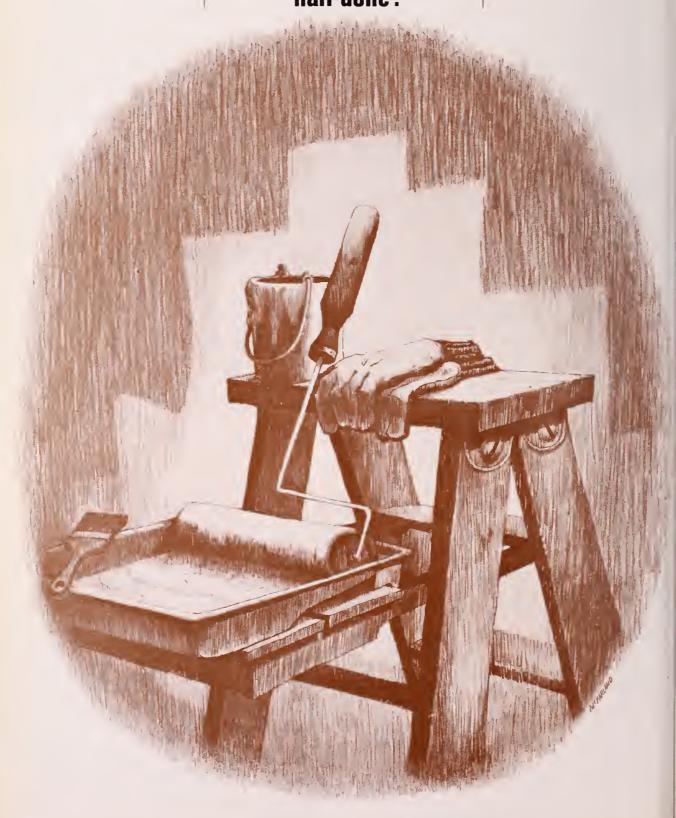
Contraindicated: In acute glaucoma, prostatic hypertrophy, and in the presence of urinary bladder neck obstruction or pyloric obstruction or stenosis with significant gastric retention.

Robinul-PH is contraindicated in patients sensitive to phenobarbital or with advanced hepatic or renal disease.

references: 1. Sun, D. C. H.: Ann. New York Acad. Sc. 99:153, Feb., 1962. 2. Posey, E. L., Jr.: Am. J. Digest Dis. 7:863, Oct., 1962. 3. Slanger, A.: Journal of New Drugs 2:215, July-Aug., 1962. 4. Kasich, A. M., and Fein, H. D.: Am. J. Gastroenterology 39:1, Jan., 1963. 5. Breidenbach, W. C.: Invest. Clin. Report, March, 1961. 6. Young, R., and Sun, D. C. H.: Ann. New York Acad. Sc. 99:174, Feb., 1962. 7. Epstein, J. H.: Am. J. Gastroenterology 37:295, March, 1962. 8. Orchow, H. S.: Clin. Med. 9:1743, Aug., 1962. 9. Moeller, H. C.: Ann. New York Acad. Sc. 99:158, Feb., 1962.

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*Schiller, I. W., and Lowell, F. C.: New England J. Med. 261:478, 1959.

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hospitalization and shock therapy are sometimes required. Daily dosage above 0.25 mg. is contraindicated in patients with a history of mental depression or peptic ulcer. Withdraw Serpasil (reserpine) 2 weeks before surgery, if possible. For emergency surgical procedures, vagal blocking agents should be given parenterally to prevent or reverse hypotension and/or bradycardia.

Supplied: Tablets, 0.1 mg., 0.25 mg. and 1 mg.

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MEETINGS

Southwestern Medical Association N.M. Medical Society To Meet Jointly in El Paso November 14-16

The 45th annual meeting of the Southwestern Medical Association, to be held in conjunction with the Interim Meeting of the New Mexico Medical Society, will be held in El Paso, Texas, November 14-16, 1963.

Headquarters will be in the new Holiday Inn, just off Interstate 10 and close to both the El Paso International Airport and the new Bassett Shopping Center. Not too distant is the new free Cordova bridge and port of entry to Mexico.

Speakers will be Dr. Ethan Allan Brown, M.R.C.S. (England) L.R.C.P.. (London), Boston, Editor of Annals of Allergy and Director of the Asthma Research Foundation, Inc.; Dr. Hermann M. Burian, Iowa City, Professor of Ophthalmology, College of Medicine, State University of

Iowa: Dr. J. T. Jabbour, Oklahoma City, Assistant Professor of Pediatrics and Neurology, University of Oklahoma Medical Center; Dr. S. Arthur Localio, New York, Professor of Clinical Surgery, New York University Schools of Medicine; Dr. James L. Sheehy, Los Angeles, Assistant Clinical Professor of Surgery (Otology), University of Southern California School of Medicine; Dr. Demetrio Sodi-Pallares, Mexico City, Professor of Medicine, University of Mexico, Fellow of the American College of Chest Physicians, Fellow of the American College of Cardiology; and Dr. Carl E. Wasmuth, LL.B., Cleveland, Cleveland Clinic and Cleveland-Marshall Law School.

The Southwestern convention will be an open meeting, and all doctors are invited. There will

Dr. Brown



Dr. Burian



44: NO. 9 (SEPTEMBER) 1963



Dr. Jabbour



Dr. Localio

FE V

be morning scientific sessions only. Scientific subjects were selected for their usefulness in the daily practice of medicine. A feature will be the Homecoming game at 8 p.m. Saturday, Nov. 16, between Texas Western and Texas Tech in the new Sun Bowl stadium.

Officers of the Southwestern Medical Association are Dr. M. D. Thomas, El Paso, president; Dr. F. A. Shallenberger, Tucson, president-elect; Dr. R. F. Boverie, El Paso, vice-president; and Dr. Grady Morrow, El Paso, secretary-treasurer.

Officers of the New Mexico Medical Society are Dr. C. Pardue Bunch, Artesia, president; Dr. Omar Legant, Albuquerque, president-elect; Dr. Robert P. Beaudette, Raton, vice-president; and Dr. Hugh B. Woodward, Albuquerque, secretary-treasurer.

Program

Thursday, November 14

8:30 a.m.	Registration		
9:00 a.m.	The Fundus of the Eye in Sys-		
	temic Disease		
	Dr. Hermann M. Burian		
9:30 a.m.	Discussion		
9:40 a.m.	Neurological Evaluation of the		
	Infant		
	Dr. J. T. Jabbour		
10:10 a.m.	Discussion		
10:20 a.m.	Coffee		
10:50 а.пг.	Otitis Media: Diagnosis and		
	Treatment		
	Dr. James L. Sheeliy		
11:20 а.т.	Discussion		
11:30 a.m.	The Clinical and Electrocardio-		
	graphic Diagnosis of Coronary		
	Insufficiency		
	Dr. Demetrio Sodi-Pallares		
12:00 noon	Discussion		
12:10 p.m.	Luncheon		
_	Guest Speaker and Discussion		

Friday, November 15

8:00 a.m.

	nosis of Conjunctivitis, Iritis, and
	Glaucoma
	Dr. Herman M. Burian
9:00 a.m.	Discussion
9:10 a.m.	Abdomino Perineal Resection of
	the Rectum and Management of
	Colostomy
	Dr. S. Arthur Localio

The Red Eye: Differential Diag-

9:40 a.m. Discussion9:50 a.m. Coffee

10:20 a.m. The One (or Two) Injection

Method of Treatment of Inhalant

Allergy

Dr. Ethan Allan Brown

10:50 a.m. Discussion

11:00 a.m. The Polarized Treatment in Clini-

cal Practice

Dr. Demetrio Sodi-Pallares

11:30 a.m. Discussion

11:40 a.m. Hearing Impairments: Mechanism, Prevention and Treatment

Dr. James L. Sheehy

12:10 p.m. Discussion 12:30 p.m. Luncheon

Guest Speaker: Dr. Carl E.

Wasmuth

Changing Concepts in Medical Malpractice

Saturday, November 16

8:30 a.m. Treatment of Common Disorders

by Hypnosis

Dr. Ethan Allan Brown

9:00 a.m. Discussion

9:10 a.m. Legal Pitfalls in the Practice of

Medicine

Dr. Carl E. Wasmuth

9:40 a.m. Discussion 9:50 a.m. Coffee

10:20 a.m. The Infant with Epilepsy

Dr. J. T. Jabbour

10:50 a.m. Discussion

11:00 a.m. Granulomatous Disease of the

Large Intestine

Dr. S. Arthur Localio

11:30 a.m. Discussion

11:40 a.m. Business Meeting and Luncheon

New Mexico Medical Society Interim Meeting

Council 3 p.m., Thursday, November 14 House of Delegates 2 p.m., Friday, November 15

2:30 p.m., Saturday, November 16

The Interim Meeting of the Auxiliary of the N. M. Medical Society will be held in conjunction with the joint program of the State Medical Society and the Southwestern Medical Association.



Dr. Sheehy



Dr. Wasmuth

Dr. Fishbein to Speak At Cardiovascular Symposium

Dr. Morris Fishbein, former editor of the Journal of the American Medical Association, will be one of several outstanding speakers at a one-day symposium, Sunday, September 15, 1963, on the subject of "Current Concepts of Cardiovascular Diseases". The session is jointly sponsored by the El Paso Chapter of the American Academy of General Practice and the El Paso County Medical Society, and will be held in El Paso.

Dr. Fishbein will be the luncheon speaker. Luncheon chairman will be Dr. William R. Gaddis, president of the El Paso County Medical Society.

Speakers

Other speakers and their subjects will be:

Dr. Earl K. Shirey, Cleveland, Department of Pediatric Cardiology and the Cardiac Laboratory, Cleveland Clinic, "Coronary Arteriography".

Dr. Arthur Grollman, Dallas, Professor and Chairman, Department of Experimental Medicine, The University of Texas Southwestern Medical School in Dallas, "Cardiac Problems of Pregnancy".

Dr. Ray W. Gifford, Jr., Cleveland, Department of Hypertension and Renal Disease, Cleveland Clinic Foundation, "Atherosclerosis".

Dr. Clark H. Millikan, Rochester, Minn., Head of the Section of Neurology, Mayo Clinic, and



Dr. Fishbein

Professor of Neurology at the Mayo Foundation Graduate School, University of Minnesota, "Evaluation and Current Treatment of Cerebrovascular Occlusive Disease".

The meeting will be held in the Hilton Inn. Grant for the session is being provided by Lederle Laboratories.

Dr. A. Robert Nering and Dr. William Wade of El Paso are co-chairmen in charge of the symposium. Dr. Billy B. Kern will be moderator for the morning session and Dr. Walter C. Autrey moderator for the afternoon program. Dr. Nering is in charge of reservations.

AAGP Credit

Physicians from West Texas, New Mexico, Juarez, and military medical personnel at installations near El Paso are invited.

The meeting has been approved for six hours of Category I credit by the AAGP.

A cocktail party for doctors and wives will be held in the Hilton Inn at 6:30 p.m. Saturday, September 14. Mrs. B. B. Kern will act as hostess for ladies' functions during the meeting.

Quinethazone and Quinethazone-Reserpine In Hypertension

Daniel Diamond, M.D., F.A.C.P., Brooklyn, N.Y.

Quinethazone,* one of the newer diuretics, has been reported to be a potent saluretic and antihypertensive agent.^{1,2} A quinazolinone compound, it is chemically distinct from the thiazides and phthalimidines but has a similar natriuretic and diuretic potency.¹ Its antihypertensive effectiveness is also comparable to that of these older diuretic agents, and is significantly enhanced by the addition of reserpine.² The present study was undertaken to evaluate quinethazone and a quinethazone-reserpine combination in office patients with hypertension.

Methods and Materials

A total of 36 patients with mild to moderate hypertension (only three had a diastolic pressure over 110 mm Hg) was treated. There were 29 females and seven males, ranging in age from 34 to 74 years, who can be separated into two treatment groups. The first group, composed of 10 patients, received quinethazone tablets in a dosage ranging from 50 to 300 mg daily for nine to 27 weeks. Concomitant therapy consisted of chlorpropamide (1), insulin (1), thyroid extract (1), acetazolamide (1), and guanethidine plus hydralazine (1). The second group, composed of 26 patients, received a tablet containing 50 mg of quinethazone and 0.125 mg of reserpine once or twice daily for two to 14 weeks. Fifteen of the 26 patients had previously received other antihypertensive therapy. Only four patients received concomitant therapy, which consisted of guanethidine (3) and a combination of rauwolfia, protoveratrine and phenoxybenzamine (1).

No dietary restrictions were recommended and no prophylactic supplements of potassium were prescribed. Patients were observed at bimonthly office visits, at which time weight, pulse and blood pressure were recorded.

Results

Quinethazone

A significant antihypertensive response, consisting of a decrease of 20 mm Hg or more in mean arterial blood pressure (MBP),* was obtained in seven of the 10 patients. The ranges and averages of blood pressure readings before and after therapy are recorded in Table 1. The average decrease in blood pressure was 37/14 mm Hg, with an average reduction in the mean arterial blood pressure of 22 mm Hg. However, none of the patients in this group achieved normotension (140/90 mm Hg or below). The patient who received acetazolamide in addition to quinethazone had a significant response, while the patient who received guanethidine and hydralazine with quinethazone had a drop of only 10 mm Hg in MBP.

The two female diabetic patients under treatment had a completely satisfactory response with

^{*}Supplied as Hydromox® Quinethazone by Dr. Russell Cahoon,
Department of Clinical Investigation, Lederle Laboratories, Pearl*Mean arterial blood pressure—diastolic pressure ½ of pulse River, N.Y.

Table 1
Blood Pressure Response to Quinethazone and Quinethazone plus Reserpine

Quinethazone Alone (10 Patients) Blood Pressure mm Hg Quinethazone plus Reserpine (26 patients) Blood Pressure mm Hg

RANGE	Pretreatment	Post-treatment	Decrease	Pretreatment	Post-treatment	Decrease
Systolic	180-210	130-190	20-50	180-230	140-170	40-60
Diastolic	100-110	70-100	10-30	90-130	80-100	10-30
MBP*	127-143	90-123	20-37	120-163	100-123	20-40
AVERAGI	Ξ					
Systolic	197	160	37	197	154	43
Diastolic	102	88	14	106	89	17
MBP*	134	112	22	137	111	26

^{*}Mean arterial blood pressure—diastolic pressure plus 1/3 of pulse pressure.

200 mg quinethazone daily, but had to stop therapy because of aggravation of the diabetic state. In one of them diabetes had been under control with chlorpropamide 500 mg daily. Laboratory tests indicated an increase in glycosuria from 0.1 per cent to 2 per cent, and a rise in fasting blood sugar from 160 to 225 mg per 100 ml, between the start of quinethazone therapy and its discontinuation 12 weeks later. Rauwolfia therapy was then started, and three weeks later blood and urine sugar had returned to pre-quinethazone levels. The second diabetic was receiving 30 units per day of globin insulin at the start of quinethazone therapy, at which time urine sugar was 0.25 per cent and fasting blood sugar 180 mg per 100 ml. After nine weeks of treatment the blood sugar level was 250 mg per 100 ml and urine sugar two per cent. The dosage of globin insulin had been increased to 60 units daily. Quinethazone was stopped at this time and rauwolfia therapy initiated, followed by a gradual return over a period of three months to the pre-quinethazone urine and blood sugar levels and a reduction in dosage of globin insulin to 40 units daily. No other side effects or toxic reactions were encountered in the 10 patients treated with quinethazone alone.

Quinethazone plus Reserpine

Of the 26 patients treated with the drug combination, 21 had a significant blood pressure response (as defined above). The average decrease in blood pressure was 43/17 mm Hg and 26 mm Hg in MBP (see Table 1). Normotensive readings, consisting of 140/90 mm Hg or below, were achieved in five of the 26 patients. Three patients with severe hypertension were given guanethidine, and another was given a combination of rauwolfia, protoveratrine and phenoxybenzamine, in addition to the quinethazone-reserpine therapy. All

but one of these four patients had a significant response. In comparison with previous antihypertensive therapy used in 15 cases, quinethazone-reserpine was generally more effective. Thus, there were five good and three fair responses with a thiazide plus rauwolfia or reserpine, compared to five excellent, two good and one fair response with quinethazone-reserpine. Reserpine alone gave one good and four fair responses, while the combination with quinethazone gave five excellent responses.

The only side effect encountered in this group of 26 patients was a flare-up of gout in a 43 year old man. He had received one tablet of quinethazone-reserpine daily for 41 days, resulting in a blood pressure drop from 200/130 to 160/90 mm Hg. At this time he had a typical attack of acute gout involving the right great toe and therapy was stopped (serum uric acid was not determined). The only diabetic in this group of patients showed no signs of aggravation of the diabetic state.

Discussion

In a previous study² at Hahnemann Medical College, 29 hypertensive patients were treated for eight to 12 weeks with a considerably higher dosage than that used in the present study but results were similar. Thus, reductions of 17 and 20 mm Hg were reported in the mean arterial blood pressure (supine) of 29 patients receiving quinethazone alone and 13 patients receiving quinethazone-reserpine, respectively. In this previous study,² as well as in another¹ involving 26 cardiac patients, side effects were absent and blood chemistry determinations revealed no abnormalities except an increase in serum uric acid (without clinical manifestations of gout, however). One of

the 36 patients in the present study had a flare-up of gout, but determinations of serum uric acid were not made.

Increases in fasting blood sugar and glycosuria were observed in two diabetic patients receiving quinethazone alone but not in a diabetic on the quinethazone-reserpine combination. Thus, quinethazone appears to be similar to the thiazides in that is may cause aggravation of diabetes.^{3,4} a phenomenon which is reversible upon discontinuation of the drug (also seen in the two cases herein described).

Summary

A total of 36 office patients with mild to moderate hypertension was treated. In a group of 10 patients given quinethazone 50 to 300 mg daily for nine to 27 weeks, the average blood pressure fall was 37/14 mm Hg and seven patients had a significant response. In another group of 26 patients given quinethazone 50 mg plus reserpine 0.125 once daily for two to 14 weeks, the average fall was 43/17 mm Hg and 21 patients had a significant response.

Only three of the 36 patients had side effects. which consisted of aggravation of diabetes (2) and flare-up of gout (1). Quinethazone, alone or combined with reserpine, is a valuable antihypertensive agent in office practice, although it apparently shares some of the well-known drawbacks of the thiazide derivatives.

335 South 5th Street

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On Science Fairs and Careers in Medicine*

R. C. DERBYSHIRE, M.D., Santa Fe

Recently we had the privilege and pleasure of acting as a judge in the Medicine and Health section of the National Science Fair. We had previously judged at a regional science fair which was a memorable experience, but the national event can only be described as overwhelming.

Because of the national scope of this science fair, all of the exhibitors were "finalists" in that they had previously been judged best in their states or regions. For the benefit of those who are unfamiliar with such events we should like to describe briefly the methods of judging and the selection of the winners.

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The judges are instructed to grade the exhibits on such criteria as originality, clarity, dramatic impact and skill. Preliminary judging is done during the day with the exhibitors absent. During this time it is easy to eliminate at least half of the exhibits from serious consideration. During the evening the judges confer with all of the exhibitors and have an opportunity to question them carefully concerning their experiments, methods and background. At this time questions as to originality and initiative can frequently be settled. On one point all of the judges could readily agree: the contestants were uniformly articulate.

The personal interviews are all important and often do much to sway the opinions of the judges. The contestants frequently will go too far in their conclusions thereby talking themselves out of awards. On the other hand, occasionally, when there are doubts they are readily dispelled by the clear exposition of an exhibitor.

High Quality Exhibits

After eliminating about 50 per cent of the exhibits in the preliminary studies, the work of the judges became more difficult. The remaining exhibits were of such high quality that they were hard put to select the three winners. The range of subjects was broad, embracing such problems as "Phosphatase in the Erythrocyte," "The Effect of Cooling on Radiation Damage to the Cells," and "Nitrogen Narcosis". Due to the high level of the exhibits the judges tended to become hypercritical and frequently had to remind themselves that these were projects developd by high school students, many of whom were sophomores or juniors.

The winner of the first prize, a high school junior, had a project which was so beautifully executed that there was never any doubt as to its rightful place. Indeed, this work of a school boy would have done credit to a Ph.D. candidate. Added to his fine work was his clear and concise description of his aims and methods.

Of necessity the exhibitors had to be judged on an anonymous basis and the judges could only speculate about their origins from the wide variety of accents. Although ignorant of background and names, of one thing the judges could be sure; they talked to a large number of superior high school students. One permissable question concerned future plans of the candidates and of all the leading contestants we asked, "What do you intend to study after college?" The answers varied widely but the majority favored some field of engineering. No one named medicine as first choice and only a few mentioned it as a possibility, this, despite the fact that all of them had chosen problems in the field of medicine and health.

The members of the judging team left the Science Fair with several strong emotions. They could not help being grateful for the exciting opportunity to participate in this worthy project. They were thrilled by the brilliance and enthusiasm shown by so many of the contestants. They believed that as a rule the students were not merely dull grinds who spend all available time in laboratories but that they had the potential of developing into whole, well rounded adults. The most sobering thought on the part of the physician judges was that so few of the superior students, at their present stage of development, showed any interest in medicine as a career.

Many state medical societies are sufficiently concerned with this problem to sponsor recruitment programs often with the cooperation of the medical schools. But much more than this will be required to lure superior students back to medicine. The most important single step that is being undertaken today is the constant effort of many of the medical schools to improve their curricula which should serve to convince desirable students that the study of medicine can well be a true postgraduate educational experience in a university rather than attendance at a trade school.

COMING MEETINGS

Western Association of Railway Surgeons, annual meeting, Continental Wayside Inn, Paso Robles, Calif., Sept. 26-28, 1963.

Congress of Neurological Surgeons, 13th Annual Meeting, Denver Hilton Hotel, Denver, Oct. 9-12, 1963.

University of Texas Postgraduate School of Medicine, El Paso Division, Postgraduate Course, "Emotional Problems of the Teenager," R. E. Thomason General Hospital, 4815 Alameda Avenue, El Paso. Oct. 13. 1963.

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southewestern Medical Association, 45th Annual Meeting, Holiday Inn, El Paso, Nov. 14-16, 1963.

New Mexico Medical Society, 82nd Annual Meeting, Ramada Inn. Carlsbad, April 13-17, 1964.

Clinical Pathological Conference

R. E. Thomason General Hospital, *El Paso* Case No. 43974

F. P. Bornstein, M.D., Editor

History By: George W. Iwen, M.D.

Presentation of Case By: James M. Parsons, M.D.

Dr. Parsons

This 65 year old male was admitted to Thomason General Hospital on June 16, 1962, with a brief history of a chronic, dry cough, progressive exertional dyspnea and bilateral moderate chest discomfort of four months duration. He was initially seen by his attending physician three months prior to admission when a chest X-ray was obtained and he was given "diuretics, expectorants, digitalis and anti-tuberculous therapy". He experienced no change in his cough or dyspnea.

The patient was born in Mexico and worked as a laborer on ranches in Mexico, Texas and New Mexico. He gave no history of significant illness prior to the present one, of no serious accidents, and of no previous hospital admissions.

Physical examination revealed a well nourished, small 65 year old Latin-American male who weighed a hefty 113 lbs. He had a normal temperature of 98.4. His pulse was 80, respiration was somewhat increased at 36 per minute; his blood pressure was normal at 120/70. Physical findings were dullness over the upper half of both lung fields with bilateral inspiratory and expiratory wheezing and occasional fine crackling rales. There were no other significant physical abnormalities recorded.

Laboratory examination revealed a normal urinalysis, a white blood count of 12,700 with what I consider a normal distribution. Hemoglobin was quite good at 16.0 gms; hematocrit 48 vols. percent; sed. rate was slightly increased at 22 mm. per 60 min. He had a positive PPD, This is not too remarkable in a patient of this age group. Only if it had been negative could you put much faith in it. He had three serial sputum specimens for acid fast smear which were negative and he had chest X-rays on admission.

On July 27, 1962, an operation was performed on the left lung.

Discussion

There are three X-rays to be discussed, made on the 18th of June 1962, the 20th of June and the 30th of July. The first (Figure 1) shows primarily rather diffuse fibro-nodular infiltrate, which poses quite an extensive differential diagnosis from a purely radiological standpoint. Another significant feature of the X-ray is a heart appearing normal for a person this age. There is no evidence whatsoever of pulmonary emphysema, which we see in almost all the chronic lung diseases.

The follow-up films reveal no really great change. You might argue that there has been a little bit of progression, certainly there has been no clearing; but in my opinion, they are really unchanged. My differential diagnosis of this lesion will not be quite as extensive as some of the differentials I ran across in the literature. There was an article in a Medical Clinics of North America, which listed no less than 150 diseases which could produce this radiographic appearance.

In this hospital, the most common disease with this type of an X-ray is tuberculosis. You could argue that there are areas suggestive of cavitation in this chest, although I cannot say this with certainty. Diffuse indolent tuberculosis shows this type of X-ray findings and clinical symptoms not too unlike those which this man presented. This disease exists usually for years before the patient is aware of any illness. In view of the fact that this man does not have any evidence of chronic lung disease, and in view of the fact that he has a normal blood count, that he is afebrile and has a nonproductive cough, I do not believe that this man has tuberculosis.

There are many other bacterial diseases that can present in this way. In fact, practically any of the bacterial diseases that attack the lung can present in this way, but here again the clinical findings rule these out. Next I would like to mention the fungus diseases and in these I include histoplasmosis, coccidioidomycosis. blastomycosis, actinomycosis, moniliasis, aspergillosis and quite a few others. These can present an X-ray picture quite similar to what we see here, but here again, I think we seldom, if ever, see the patient complaining only of shortness of breath and vague chest discomfort and also a non-productive cough. So, I am going to pass over the fungus diseases.

Next, there are quite a few viral diseases which can present this type picture, and these are plain old measles and chicken pox, particularly in adults. Adults may have a pneumonitis presenting with a picture such as this. The pneumonitis phase of the disease appears about two weeks after the onset of symptoms. Therefore, we should have a history of the rash and the other manifestations of the disease. Other viral diseases with these manifestations are influenza and psittacosis.

There are two Rickettsial diseases, Q-fever and Rocky Mountain Spotted Fever which may produce similar X-ray findings. When I was in general practice, I had a young man with Rocky Mountain Spotted Fever for a patient who had a chest X-ray not too unlike what we have here. But again, here we have none of the other clinical findings.

There are a few parasitic diseases that can present a chest X-ray such as this; schistosomiasis and toxoplasmosis are quite rare in this area.

The next extensive group of diseases to be considered are the pneumoconioses. They may be acute or chronic. I do not believe that this is one of the chronic phases of the pneumoconioses. As to the acute phases, I think the two most common ones are bagassosis and berylliosis. Bagassosis occurs in Louisiana among sugar cane workers. Bagasse is the residue of sugar cane stalks. Acute bagassosis may produce an X-ray similar to this, but the patients are extremely ill, they have high fever and frequently die. I do not believe then that this is one of the pneumoconioses.

Next, we have to consider a cardiovascular problem. By this I mean pulmonary edema. While this is not a classical picture of pulmonary edema, pulmonary edema may certainly manifest itself in this fashion, although there is a normal heart. Certainly we have all seen pulmonary edema from renal disorders, so-called uremic or azotemic pulmonary edema. As we have no indication in the history or physical findings of any type of renal disease, I am going to pass this over.

Next we come to the collagen diseases, all of them may have pulmonary phases. In collagen diseases, however, the other aspects are more prominent than the pulmonary phase.

Next, we have to consider neoplasm. Lymphangitic spread of metastatic tumor can certainly present a picture such as this, as can primary neoplasm, particularly the so-called pulmonary adenomatosis.

Leukemia without question may produce a miliary type infiltrate in the lung. With normal blood count, and no other evidence of any type malignant disease, we can pass this over. This brings me down to a few diseases of uncertain etiology, probably the most common one is sarcoidosis. It very often has a pulmonary phase similar to this, although I have never seen a case of sarcoidosis quite as extensive and at the same time completely asymptomatic. In the latter phase of the disease severe pulmonary fibrosis may develop. This occurs usually over a period of many,

many years and usually one can elicit some history of the disease in these patients who appear with chronic lung symptoms. As I said before, I don't think this patient has chronic lung disease and I don't believe this is sarcoidosis.

Other diseases of unknown etiology I would like to mention, pulmonary alveolar proteinosis, a disease which has been described relatively recently, but here again the people are quite ill. They do present with X-rays such as this. Eosinophilic granuloma can present with an X-ray such as this, but here again these people are ill. Dr. Glenn A. Stokdyk mentioned in his differential on this patient Wegener's granulomatosis; these people also have trouble elsewhere, I think primarily in the nose with erosion.

I am now coming to my diagnosis of the patient's condition, which is a diagnosis that can only be established by biopsy. Obviously that was the type of surgery performed on this patient. This condition can be suspected clinically, but cannot be diagnosed definitely, and is the Hamman-Rich Syndrome which is also known as diffuse progressive idiopathic pulmonary fibrosis. I will make a few comments about it, it was first described by Hamman and Rich in 1935 and the second report in the literature was in 1944. It is a disease of unknown etiology which previously had been considered a quite rare disease. In more recent years there have been more and more reports. It is classified more as common than rare at the present time. There are people who have reported improvement from the cortico steroids in treating this disease. There are others who have reported initial improvement on massive doses. After withdrawal or reduction of the dosage of steroids, the patients have died suddenly. The disease is progressive, the people frequntly die in a matter of a few months. The longest reported survival after the development of symptoms is nine years. The people die from pure asphyxiation, from inability to transfer oxygen across the alveolar wall due to the dense fibrosis.

Dr. Jack C. Postlewaite

This case, I feel sure, is one of our non-tuberculosis cases, because the wheezing mentioned in the physical examination suggests to me obstruction. In tuberculosis wheezing is not the outstanding finding. Even patients with old fibroid disease generally do not wheeze, particularly not both inspiratory and expiratory. I believe then that this wheezing is certainly objective and important because the patient, I believe, was a pulmonary cripple. It would take additional tests to justify this diagnosis.

I think we have to then decide first if our patient is a surgical candidate or not. Then we have to see whether he is a tuberculous patient or not and therefore has an inflammatory disease. Then we have to think of what degenerative changes are superimposed on the tuberculosis if we are unlucky enough to get a positive sputum, which may or may not be true. We have our sputums overread now and we have teeming numbers of bacteria that are not tuberculosis, but appear to be acid fast bacilli and possibly of the unusual organism group which are the chromogens and non-chromogens.

Now our problem then comes to; are we dealing with degenerative disease, inflammatory disease superimposed or malignancy. We have an undue number of cases that have a malignancy superimposed upon their original pulmonary pathology of long duration. I think the disease which we are talking about is the Hamman-Rich Syndrome. I suspect Dr. Parsons is right or this case would not have been presented tonight.



Figure 1: Chest X-ray.

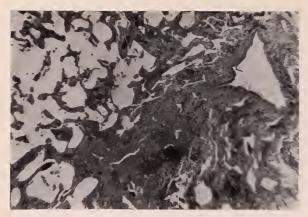


Figure 2: Lung, survey picture one to 40.

We have this problem called immune disease, hyperimmune disease, allergic disease, whatever you wish. This has given us a lot of trouble in pulmonary disease and the management thereof. In talking of steroids, and I don't know if steroids are worth anything in the Hamman-Rich group, one adds at least to the congestive failure problems that occur. pulmonary hypertension, salt retention, etc.

We are faced with the question of using rather dangerous drugs in the face of a possible breakdown. You many have a very silent, well managed chronic pulmonary tuberculosis which will not break down until the day comes when somebody unbalances his healing response with the administration of steroid. In short, we have to present these patients to the surgeons and have them well worked up and we have always tried to blame soembody else, so we blame you and the radiologist and the bacteriologist.

Clinical Diagnosis: Chronic pneumonitis. Dr. Parsons' Diagnosis: Hamman-Rich Syndrome.



Figure 3: Chronic pneumonitis with areas of old hemorrhage one to 100.

Pathological Discussion

We received a small piece of lung tissue from the biopsy and therefore the discussion by necessity has to primarily concern itself with microscopic findings.

Figure Two. Shows a survey picture of the specimen. Obviously the normal pulmonary structure has disappeared. One sees severe fibrosis associated with emphysema and cyst formation of the alveoli. In addition, inflammatory changes of various intensity are noted, accompanied by hemorrhage and eosinophilic infiltration.

Figure Three. These are findings, as my associate, Dr. John B. Frerichs, pointed out in his report on the biopsy, rather characteristic of the Hamman-Rich Syndrome. The author described it as a non-bacterial progressive pneumonitis with a certain amount of eosinophilic infiltration and hemorrhage. It is obvious that there are certain difficulties to isolate such syndrome in the multitudinous types of chronic pneumonitis.

For example, in the olden days when lobar pneumonia was common, unresolved lobar pneumonia was fairly common, too. These fibrotic lungs were described by Rindfleisch in 1885 as cirrhosis of the lung, a term that has fallen into disuse. The fact, however, remains that chronic inflammation of the lung can happen (1) bacterially, (2) chemically (3) on a physical base, or (4) like here, on a non-specific base.

I would like to point out that not only carcinoma of the lung increases in frequency, but also non-specific chronic pnuemonitis with fibrosis. Whether you want to call this then Hamman-Rich Syndrome or not is not as relevant as being aware of the fact that this condition is on the increase. Many other lung conditions of known etiology such as radiation pneumonitis will produce a markedly similar histological picture.

It is my belief that Hamman-Rich is just one out of a group of morphologically similar lung lesions which at the present time need a lot of investigation because they have become more common and because treatment and etiology are totally unclear.

Pathological Diagnosis: Lung biopsy, chronic pneumonitis, Hamman-Rich type.

Smoking and Respiratory Diseases

Since the New Mexico Tuberculosis Association currently is launching its educational campaign to alert the lay public to recognize the warning signs of serious respiratory disease, it seems appropriate to point out that the House of Delegates at its 81st Session in Albuquerque passed the following resolution.

"WHEREAS, it is now reasonably established that there exists a correlation between the use of tobacco and the incidence of cancer of the lung, cardio-vascular diseases, and respiratory diseases; and that the Society endorse any approved program designed to reduce the incidence of these diseases".

As members of the New Mexico Medical Society have occasion to cooperate with local groups of the New Mexico Tuberculosis Association and other groups in their publicity, it may be helpful to point out this recent endorsement regarding the connection of smoking with respiratory disease. Certainly efforts on the community level aimed at discouraging teenagers from ever starting cigarette smoking are the legitimate responsibility of

physicians who are taking seriously their obligations to "improve the public health".

An abstract sent out by the National Tuberculosis Association quoting a paper appearing in the New England Journal of Medicine, Oct. 18, 1962, by Dr. Donald O. Anderson and Dr. Benjamin G. Ferris points out the following.

"There was almost uniform progression in the prevalence of all chronic respiratory disease, chronic bronchitis, irreversible obstructive lung disease with increasing cigarette smoking. Among men the rate for all chronic respiratory disease rose from 19.7 per cent among those who have never smoked cigarettes to 87.7 per cent among those who smoked more than two packs a day. Among women it rose from 17.2 per cent among non-smokers to an average of 43.3 per cent among all those who smoked more than a pack a day".

This study involving 532 men and 607 women is another in a long series strengthening the evidence of the correlation of tobacco with respiratory diseases.

C. Pardue Bunch, M.D.

President, New Mexico Medical Society
. . . . From the New Mexico NEWSLETTER

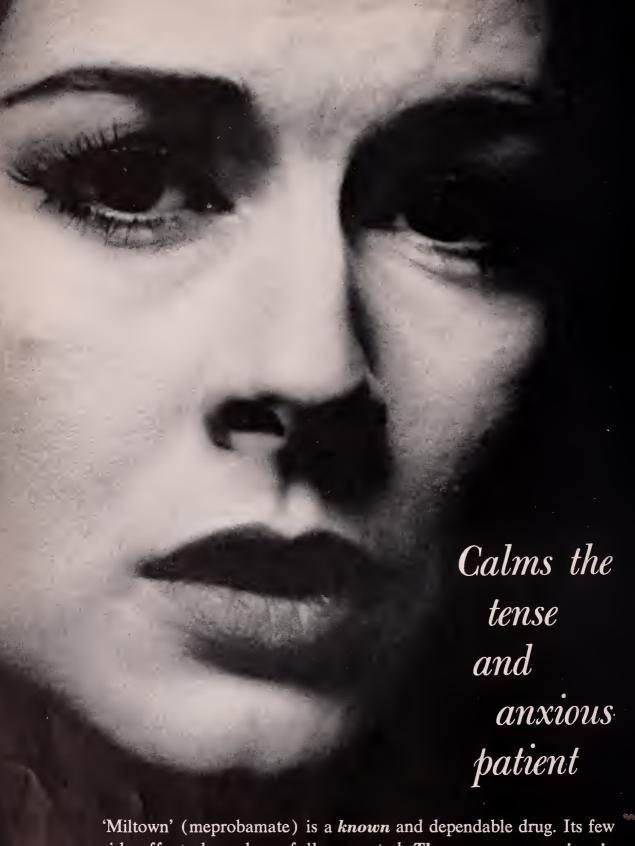


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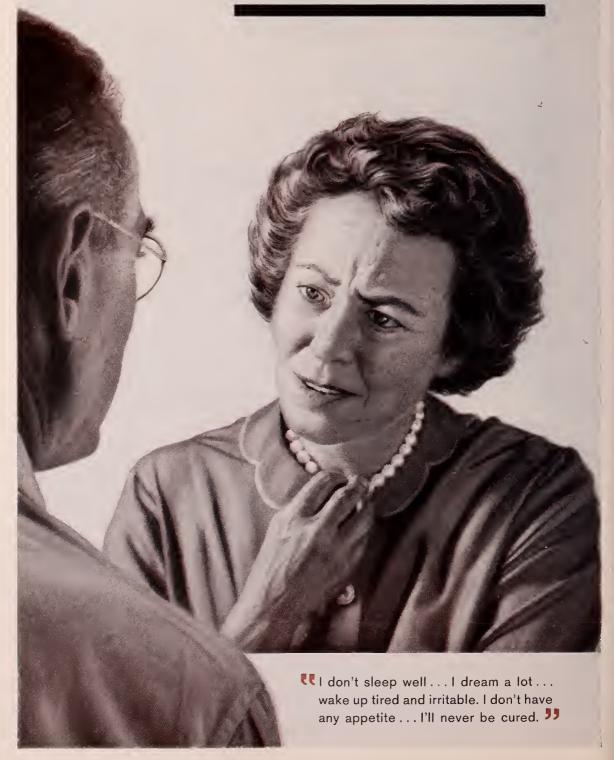
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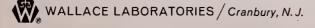
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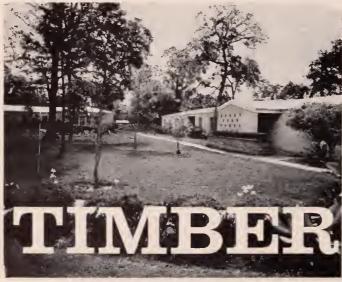
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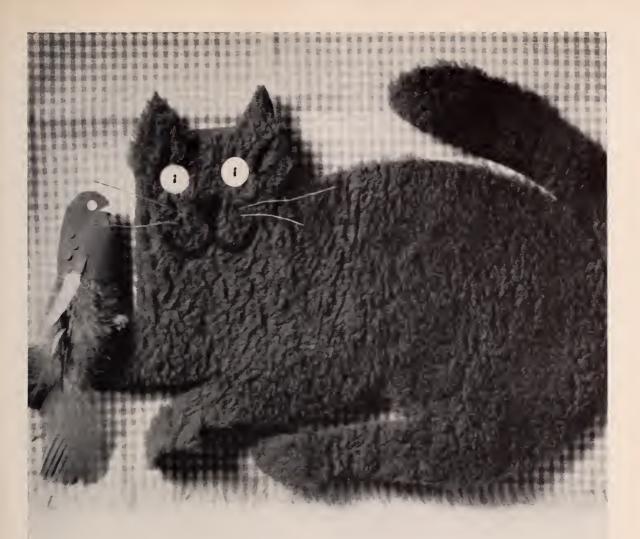
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In his report, Siegler¹ states: "In mild depression or in clinical exhaustion syndromes, a marginal sympathomimetic drug like methylphenidate seems to be the drug of choice for initiating therapy. It does not have the toxic effects found with the amphetamines or with the hydrazines or other antidepressants."

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CAUTION: Should not be used to increase mental or physical capacities beyond normal limits. Use cautiously with epinephrine or levarterenol.

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SUPPLIED: Tablets, 5 mg. (pale yellow), 10 mg. (pale blue) and 20 mg. (pale orange).

REFERENCES: 1. Siegler, P. E., in Nodine, J. H., and Moyer, J. H. (Editors): Psychosomatic Medicine, The First Hahnemann Symposium, Lea & Febiger, Philadelphia, 1962, p. 582. 2. Lapolla, A.: Western Med. 2:383 (Sept.) 1961. 3. Yoss, R. E., and Daly, D. D.: Pediatrics 25:1025 (June) 1960.

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Ritalin® hydrochloride (methylphenidate hydrochloride CIBA)

AMPAC Representative Will Speak to Doctors

Richard M. Layton of Portland, Oregon, field representative for AMPAC, has been added to the program of the 45th annual meeting of the Southwestern Medical Association, to be held November 14-16, 1963, in El Paso in conjunction with the Interim meeting of the N. M. Medical Society and its Auxiliary. Mr. Layton will speak to a joint meeting of doctors and wives on Saturday noon, November 16. in the new Holiday Inn. headquarters for the convention.



Dr. Sodi-Pallares

The extraordinary slate of speakers includes Dr. Demetrio Sodi - Pallares, Mexico City, Cardiologist, Dr. Ethan Allan Brown, Boston, Allergist, Dr. Hermann M. Burian, Iowa City, Ophthalmologist, Dr. J. T. Jabbour, Oklahoma City, Pediatric Neurologist, Dr. S. Arthur Localio, New York, General Surgeon, Dr. James L. Sheehy, Los Angeles, Otologist, and Dr. Carl

E. Wasmuth, Cleveland, Anesthesiologist and Attorney.

Such subjects as "Changing Concepts in Medical Malpractice", "The Infant with Epilepsy", "Legal Pitfalls in the Practice of Medicine", "Treatment of Common Disorders by Hypnosis", and "Hearing Impairments" are on the agenda.

A complete social program has been arranged for the wives, with golf, bridge and a fur show at Coronado Country Club. A dinner dance will be held with cocktails starting at 7 p.m., Nov. 15, in the Juarez County Club. Scientific sessions will be held during mornings only and afternoons will be free for physicians, with a golf tournament at 1 p.m., Nov. 15, at the Coronado Country Club,

horse racing at Sunland Park, and the Home-coming Game Saturday night between Texas Western and Texas Tech. Also included on the program is a shopping tour of Juarez Friday afternoon.

Dr. Zigmund W. Kosicki, El Paso, is general chairman in charge of the meeting, and Dr. William H. Wade, El Paso, is program chairman. Other doctors, all of El Paso, assisting Dr. Kosicki, are:

Dr. B. B. Kern, accreditation, AAGP; Dr. W. G. Morrow, Jr., golf tournament; Dr. Russell L. Deter, headquarters; and Dr. Robert A. Nering, football game.

Serving with Dr. Kosicki in planning the convention are Dr. W. R. Gaddis, Dr. Louis W. Breck, Dr. Ira A. Budwig, and Dr. Robert F. Boverie of El Paso. Dr. Homer Galindo of Juarez is in charge of coordination with Juarez physicians.

The meeting will be an open one and all doctors are invited.

The New Mexico Medical Society's Council will meet at 3 p.m. Thursday, Nov. 14, and its House of Delegates, at 2 p.m., Nov. 15, and 2:30 p.m., Nov. 16.

Following is a complete schedule of women's social activities, along with meeting times for the Interim session of the Woman's Auxiliary to the N. M. Medical Society, its Executive Board and House of Delegates.

Women's Program

Registration: 8:30 a.m. Thursday through noon on Saturday.

Thursday, November 14

1:30 p.m. Hospitality Room to Holiday Inn 4:30 p.m. (Physicians and wives)

Friday, November 15

9:00 a.m. Golf Tournament Coronado Country Club

9:30 a.m. Bridge Tournament Coronado Country Club

12:00 noon Cocktails and Luncheon
Coronado Country Club
Fur showing and door prize
by Whitten Furriers

2:30 p.m. Leave Coronado Country Club for shopping tour of Juarez

7:00 p.m. Cocktails and Dinner Dance Juarez Country Club

Saturday, November 16

9:30 a.m. Executive Board Meeting
Woman's Auxiliary to the
New Mexico Medical Society
Holiday Inn

10:30 a.m. House of Delegates Meeting
Woman's Auxiliary to the
New Mexico Medical Society
Holiday Inn

12:30 p.m. Luncheon for Doctors and Wives
Holiday Inn
Guest Speaker: Richard M.
Layton

Afternoon Horse Racing at Sunland Park 8:00 p.m. Homecoming Football Game

Texas Western College
vs
Texas Tech
New Sun Bowl Stadium

Transportation will be available to Sun Bowl Stadium, Sunland Park, Coronado Country Club, and Juarez Country Club. Mrs. A. Robert Nering is general chairman in charge of the women's activities. Serving with Mrs. Nering are:

Mrs. Zigmund W. Kosicki, invitations; Mrs. H. M. Gibson, registration; Mrs. Russell L. Deter, hopitality; Mrs. Grady Morrow, Jr., and Mrs. Maynard S. Hart, golf; Mrs. Joe C. Carter, bridge; Mrs. George Schlenker and Mrs. James L. Hargan, luncheon; Mrs. Gray E. Carpenter and Mrs. William H. Wade, fur showing; Mrs. B. B. Kern and Mrs. Homer Jacobs, shopping tour of Juarez; Mrs. Ira A. Budwig, dinner dance; Mrs. Morton Leonard, horse racing; and Mrs. Vincent M. Ravel, publicity.

Exhibitors

Astra Pharmaceutical Products, Inc., Worcester, Mass. Ayerst Laboratories, Los Angeles Don Baxter, Inc., Glendale, Calif. Creditors Service Bureau and Medical Arts Division, El Paso Deseret Pharmaceutical Company, Salt Lake City Dome Chemicals, New York El Paso County Chapter, National Polio Foundation Fuller Pharmaceutical Company, Minneapolis Geigy Pharmaceuticals, Yonkers, N. Y. J. A. Majors Company, Dallas Mission Pharmaceutical Company, San Antonio B. G. Morton and Company, Investments, Albuquerque National Bonc and Tissue Laboratories, Inc., Houston National Cash Register Company, El Paso Parke, Davis and Company, Detroit Wm. P. Poythress and Company, Inc., Richmond, Va. Sandoz Pharmaceuticals, Hanover, N. J. Southwestern Surgical Supply Company, El Paso Strasenburgh Laboratories, Rochester, N. Y. Trent Pharmaceuticals, New York U. S. Vitaniin and Pharmaceutical Corp., New York Westwood Pharmaceuticals, Buffalo, N. Y.

COMING MEETINGS

Southwest Obstetrical and Gynecological Society, Annual Meeting, Palm Springs, Calif., Nov. 3-6, 1963.

Southwestern Medical Association, 45th Annual Meeting, Holiday Inn, El Paso, Nov. 14-16, 1963.

Baylor University College of Medicine, Dept. of Pediatrics, and Division of Maternal and Child Health, Texas State Dept. of Health; annual Pediatric Postgraduate Symposium, Texas Children's Hospital, Houston, Nov. 14-16, 1963.

American College of Physicians, first Sectional Meeting (Midwest), Sheraton-Cadillac Hotel, Detroit, Nov. 21-23, 1963.

New Mexico Medical Society, 82nd Annual Meeting, Ramada Inn, Carlsbad, April 13-17, 1964.

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

EDITORIAL

The Role of the County Medical Society in a Community-wide Cancer Program

The report in this issue of Southwestern Medicine on the El Paso County Medical Society Cancer Follow-up Program represents one phase of a community-wide cancer program that reflects what can be accomplished with complete and unanimous medical cooperation. The small group of physicians that organized the El Paso County Medical Society Tumor Clinic in 1938 were not aware at the time that this was the first Tumor Clinic in the U. S. to be sponsored and operated by a County Medical Society. Nor could they anticipate the well-rounded and successful community-wide program that would evolve from this meager beginning.

Because of the interest and cooperation of the members of the El Paso County Medical Society. the Tumor Clinic has continued a successful operation since its inception, adding to and increasing its functions to include: (1) a full time tumor clinic (2) a medical secretary (3) considerable diagnostic equipment (4) a continuing professional educational program.

The success of the Tumor Clinic and the interest in its community function made it convenient and simple to establish a Cancer Information Center in 1947, conducted by full-time employees and the large number of lav volunteers interested in cancer and active members of the American Cancer Society. Control of all activities of the Cancer Information Center are under the auspices and supervision of the El Paso County Medical Society. In addition to the dissemination of general cancer information these workers also maintain a service program including a loan closet with equipment and supplies necessary for the care of the cancer patient in the home; transportation service for cancer patients to and from the doctors office or hospital; a home visiting program and a continuing public education program on all phases of cancer.

With the successful operation of a Tumor Clinic and a Cancer Information Center it was soon

realized that there should be some way to evaluate the results of these functions and to determine what had been accomplished and the means whereby these results could be compared to other similar programs.

In 1951 a demonstration project was begun in El Paso to show how a follow-up program in cancer could reach an entire definable population if the program were sponsored unanimously by the medical profession, supported by the hospital administrators and organized and supervised with experienced skill and financed in materials and clerical personnel. All of these requirements were fulfilled, and the El Paso County Medical Society Cancer Follow-Up Program was started.

Medical Oasis

El Paso was selected, first, because there was evidence that there would be complete, enthusiastic and able support and cooperation of the physicians and the hospital administrators: second, because the region constitutes somewhat of a population and medical oasis.

The Texas Cancer Coordinating Council approved the program. This council is composed of representatives from the State Medical and State Dental Society, Texas Division of the American Cancer Society, the University of Texas, M.D. Anderson Hospital and Tumor Institute and the Texas State Department of Health.

The follow-up program was started in 1951, but the case records were abstracted from the year 1944. Four trained and experienced members of the epidemiology section from the M. D. Anderson Hospital and Tumor Institute were initially assigned to El Paso. New workers replaced the experienced ones after receiving training. Both inpatient and out-patient admissions for all causes were inspected in each contributing source and an

index card was made of each cancer case. Lists were prepared of the pathology accession numbers to assure complete pathology inclusions. The index cards were then filed alphabetically, so that visits subsequent to the first would be recognized as follow-up and entered as such.

The complete narrative clinical type of abstract form was used because it would be of immediate and permanent use to the physicians. Every individual record has been abstracted to a multi-item code which is up-dated each time follow-up information is obtained. More than 20,000 abstracts have been matched to give a master file of 16, 182 individuals.

Each individual and each cancer is counted only once in the total report. The original of each abstract is kept at the source and constitutes the local separate registry that fulfills the requirements for a Cancer Registry of the Accreditation Committee of American Hospital Association. The carbon copy of the abstract is sent to the central registry installed at the M. D. Anderson Hospital and Tumor Institute and punched cards are prepared and filed by site of cancer .

Incidence

The age-adjusted incidence rates by year, the sex, and ethnic group for each of the eighteen years (1944-1961) have been figured, as well as the modified life table method of survival rates for all separate sites. Trends have been figured on the changing incidence for each of the sites by sex and ethnic group. Since the records were obtained from hospitals, laboratories, (x-ray and pathology), clinics and dermatologists' offices in the County of El Paso it is thought that this report represents very close to the total occurrence of cancer in this county.

Percentage distribution of cancer can be figured on the total of the resident and non-resident cases in a registry. However, incidence figures, that is, the number of new cases of cancer discovered each year in every 100,000 of the population, must be on a definable or resident population. The popula-

tion of El Paso County, of which 91 per cent is resident in the City of El Paso, has tripled in size in twenty years.

The average mean age of El Paso Citizens is the youngest of any urban area in the U. S. Latin Americans constitute 43.6 per cent of the total population. Hence, the report gives an accurate analysis of prevelance, incidence, age and sex, site distribution, survival rates and trends of cancer in a rapidly growing community with a relatively young average age and made up of two ethnic groups of almost equal number. Age-adjusted and age-specific incidence rates of cancer are included for the 326,000 residents of El Paso County. The rates are given separately for the two ethnic groups, by male and female and by more than fifty separate sites for each of the eighteen years from 1944-1961 inclusive.

All cancers diagnosed in El Paso County during this period have been evaluated as to results of treatment to present the survival picture. In several categories there is further subdivision of the results of treatment comparing those patients treated between the period from 1944 through 1950 and those patients treated between the period 1951 through 1961. An encouraging feature of the report is that the period from 1951 through 1961 shows significant improvement. Also in certain categories the cancer cases are evaluated on the basis of "early" or "late" diagnosis and treatment. One item on the abstract form includes a record of the time of symptoms and time of diagnosis and treatment, thus establishing culpability for delay.

The report of this program is summarized in this issue of *Southwestern Medicine* and includes tables which show the age, sex, and ethnic group, adjusted incidence rates, histologic diagnoses by anatomic site, and the modified life table survival rates. More important than presenting this most detailed and complete community-wide cancer followup program, the experience has resulted in more accurate and complete medical records (including histories, physical examinations, description of treatment, pathology reports, consultations, progress notes, etc.), which results in better patient care.

The El Paso County Medical Society Follow-Up Program For Cancer

MAYNARD S. HART, M.D.*, El Paso

In 1951 the El Paso County Medical Society became participant in a demonstration project to show how a follow-up program in cancer could reach an entire definable population. Through free and open discussion at two meetings attended by nearly the entire membership of the society, unanimous consent to sponsor the program was obtained. The availability of the services of an epidemiologist experienced in the construction of a cancer registry and follow-up program, who had obtained a grant from the National Cancer Institute to effect such a demonstration, and the financial support of the cancer control section of the Texas State Department of Health were the next two circumstances which help to account for the success of our plan.

The interest of the American Cancer Society both at the state level and through the clinic completed the focus of attention on the problem. The facilities of the Department of Epidemiology, of the University of Texas M. D. Anderson Hospital and Tumor Institute, of which the supervisor and analyst of the survey is head, made possible the computer analysis of the data and the production of the 275 page detailed 18 year report of the cancer experience in El Paso County.

El Paso had a population in 1960 of 314,070 individuals of whom 43.6 per cent had Spanish surnames. The incidence rates, age adjusted to the 1950 population of the United States, were figured separately for those of Latin American descent and other Americans. There are practically no negroes in the population, and none in the cancer registry. So far as is known these are the only adjusted incidence rates for cancer by site for Latin Americans based on a total definable population. Comparison of occurrence pinpoints significant differences in susceptibility to various

forms of cancers between Latin Americans and other Americans living under similar social conditions in the same area.

The study is the most complete yet made of all cancer occurring within a given region. It covers 16,182 patients who had 17,928 cancers diagnosed and treated during eighteen years from 1944. The city of El Paso is a medical and hospital center. During these eighteen years, residents of 81 counties in Texas, of 31 other states, of Mexico and of two other countries were treated for cancer in El Paso. More than one third came from New Mexico or Mexico.

Skin Cancer

Skin cancer is common in the El Paso area where the sun shines during 80 per cent of all possible sunshine hours. Skin cancers accounted for only 13 per cent of all cancers among Latin Americans, as against 50 per cent among other than Latin Americans.

The percentage distribution in broad categories of the cancer cases excluding skin in the total registry is shown in Table 1, by the two ethnic groups. Differences are notable in cancers of the upper respiratory tract, which constitutes about one fourth of total cancer among Latin Americans and 12 per cent among other Americans; in cancer of the breast, which is high among other Americans and low among Latin Americans; in cancers of the stomach, gallbladder and pancreas, which are higher among Latin Americans, and of cancers of the colon and rectum which are higher among the other Americans; in cancer of the bladder which is lower among Latin Americans than among other Americans; in cancer of the prostate which is lower among Latin Americans; and in cancer of the cervix which is higher among Latin Americans.

^{*}Medical Director, El Paso County Medical Society Cancer Follow-Up Program.

Table 1

Percentage Distribution by Anatomic Site, by Sex and Ethnic Group Excluding Skin

	Other	Per-	Latin	Per-	T . 1	Per-
	Other	cent	Am.	cent	Total	cent
Soft Parts	156	2.31	97	2.71	253	2.45
Skeletal System	46	.68	36	1.01	8 2	.79
Central Nervous						
System	77	1.14	47	1.31	124	1.20
Upper Respiratory &						
Alimentary Tracts	827	12.27	158	4.41	985	9.54
Miscellaneous Structures						
of Head & Neck	97	1.43	48	1.34	145	1.40
Thyroid	84	1.25	53	1.48	137	1.33
Breast	951	14.11	361	10.08		12.71
Chest Cavity					,	
Viscera	412	6.11	208	5.81	620	6.01
Abdominal Cavity						
Viscera	1,189	17.64	684	19.09	1,873	18.14
Urinary Tracts,	-,				- ,	
Male & Female	357	5.29	140	3.91	497	4.81
Genital Tract, Male	371	5.51	154	4.29	525	5.09
Genital Tract,						
Female	1,396	20.70	994	27.75	2,390	23.15
Reticuloendothelial	,				-,	
System	444	6.59	285	7.96	729	7.06
No Primary						
Discovered	335	4.97	317	8.85	652	6.32
Grand Total,				-100	502	5.02
Exc. Skin	6,742	100.00	3,582	100.00	10,324	100.00

The incidence rates, defined as the number of new cases occuring in a given year for the first time, were figured for 27 different sites of cancer and were based on the population of El Paso County only. The survival rates by nearly 100 separate breakdowns were figured on the entire registry.

The comprehensive report gives the rates for each of the 18 years by ethnic group, by totals and by sex. Table 2 gives the age adjusted incidence rates for 1961 to describe the present incidence of cancer in El Paso County. Of every 100,000 in the population, 368.37 developed cancer for the first time that year. Among other than Latin males the rate was 545.96 per 100,000; among Latin males the rate was 172.01 per 100,-000. The bulk of the difference was in skin cancer which is high in incidence among other than Latin males. With skin excluded, the rates for Latin American females, for other American males and females are closer together, while the rates for Latin American males are lower, Malignant melanoma has an adjusted incidence rate between three and four per 100,000 in both sexes and ethnic groups.

Apart from cancer of the skin, the incidence rates for the total population in descending order of volume range from the 46.63 per 100,000 for the cervix uteri through breast, prostate, intestines.

lung, corpus uteri, the reticuloendothelial system, the buccal cavity and pharynx, the ovary, stomach, urinary tract to the pancreas with an adjusted rate of 8.37 per 100,000. The other sites all have lower rates down to the lowest incidence which is .63 per 100,000 for cancer of the skeletal system.

Ethnic Groups

Marked differences are to be observed in the incidence rates between the two ethnic groups by sex. The incidence is high among Latin American males in cancers of the buccal cavity and pharynx, the central nervous system, the stomach and the intestines. The incidence is high among other than Latin American males in cancer of the lip, buccal cavity and pharynx, lung, intestines, urinary tract, prostate and the reticuloendothelial system.

Cancer of the lip is almost non-existent among Latin American females, and has a low rate of 1.13 per 100,000 among other than Latin American females. Cancers of the buccal cavity and pharynx, and thyroid are notably higher among Latin American women, as cancer of the breast is lower among them. For Latin Americans the incidence rate per 100,000 in 1961 was 35.10; for other than Latin Americans 53.73. Cancer of the lung, stomach, gallbladder, pancreas, and cervix

Table 2

Age-Adjusted Cancer Incidence Rates Per 100,000 Population

		1961			
		Latin	Latin		
		Am.	Am.	Other	Other
	Total	Males	Females	Males	Females
Total	368.37	172.01	237.96	545.96	418.16
Total Exc. Skin	200.58	139.49	216.65	212.12	218.80
Skin Exc. Melanoma	167.79	32.51	21.31	333.84	199.36
Skin of Exposed Areas					
Exc. Melanoma	153.93	29.14	15.87	307.87	183.66
Malignant Melanoma	2.98	3.36	3.39	3.91	3.82
Soft Tissues	1.20	2.06	3.56	2.02	3.61
Skeletal System	.63	.20	.77	1.10	.42
Central Nervous System	2.45	4.33	2.71	3.61	2.29
Lip	5.24	1.65	0.00	16.90	1.13
Buccal Cavity &					
Pharynx	11.68	11.97	6.53	16.66	4.91
Thyroid	2.65	.90	7.12	.78	2.68
Breast	25.42	0.00	35.10	.20	53.73
Lung	15.54	15.82	9.18	33.32	5.38
Stomach	9.91	13.20	12.32	11.44	8.18
Liver & Gallbladder	5.98	7.86	13.27	4.03	7.53
Pancreas	8.37	6.04	7.82	5.75	3.60
Intestines	15.93	18.85	9.81	13.59	26.69
Rectum	6.95	7.77	4.44	8.36	7.71
Kidney	2.45	3.03	2.71	1.72	3.02
Urinary Tract	8.77	9.37	4.88	18.30	7.41
Prostate (Males)	17.42	13.06		22.21	
Corpus Uteri (Females)	15.37		15.87		16.57
Cervix Uteri (Females)	46.63		56.15		40.01
Ovary (Females)	11.35		12.89		11.16
Reticuloendothelial					
System	13.86	13.21	13.02	19.36	10.91
Total Leukemia	8.03	6.03	7.73	13.09	4.39
Total Lymphoma	5.83	7.18	5.29	6.27	6.52
* Who was saids fluctuations	occur fu		40	C	

^{*} Where wide fluctuations occur from year to year a five or ten year average is used.

were much higher among Latin American than among other American women.

The most dramatic difference is in cancer of the breast, where other than Latin American had an incidence rate of 53.73 per 100,000, compared to the Latin American rate of 35.10 per 100,000. The incidence rates of cancer of the intestines were 26.69 per 100,000 among other than Latin American women and 9.81 among Latin American women. Cancers of the rectum and urinary tract were higher among other than Latin American women.

The survival rates for cancer as a whole in El Paso are given in table 3, at one, three, five, 10, and 15 years. Of the total patients in the El Paso registry, 45.1 per cent survived 15 years, 48.2 per cent 10 years, 54.7 per cent five years and 61.0 per cent three years. The survival rates are higher for other than Latin Americans at every interval. For individuals who sought treatment early, the 15 year survival rate was 63.4 per cent, for those with advanced cancer it was 7.5 per cent. For the early cases, Latin American males had a slightly higher five, 10, and 15 year survival rate than the Latin American females. In advanced

cancer the opposite was true at five and 10 year

Survival Rates by Site

The survival rates by site are given in Table 4 at one, three, five, 10, and 15 years except when the numbers are too small to be meaningful. The high survival rate in malignant melanoma, 40.5 per cent at five years and 37.5 per cent at 10 years, is noteworthy and encouraging. As would be expected, the survival rates in basal and squamous cell skin cancers are high.

The survival rates for soft tissue tumors are 50.5 per cent at five years, 43.9 per cent at 10 years and 38.8 per cent at 15 years; for tumors of the bone, 20.6 per cent at five years and 19.1 per cent at 10 years. The rates for both these sites imply that after three years, the prognosis is relatively stable.

The 15 year survival rate for cancer of the lip is 75.0 per cent; for combined cancers of the buccal cavity and pharynx 39.9 per cent. These 15 year results are similar to five year reported results from cancer centers less than a generation ago.

Table 3
End Results By The Modified Life Table Method

	Ganter A	S A WILLOW			
	1 Yr.	3 Yr.	5 Yr.	10 Yr.	15 Yr.
Total Cancer	72.5	61.0	54.7	48.2	45.1
Latin American	55.0	37.6	29.4	24.0	22.1
Other American	77.6	67.8	62.0	55.2	51.8
Total Males	74.1	64.6	59.6	52.9	50.2
Latin American Males	48.4	31.8	26.2	21.5	20.8
Other American Males	79.0	70.9	66.0	58.9	55.8
Total Females			49.7	43.6	40.0
Latin American Fema	les 58.6	40.9	31.2	25.5	22.9
Other American Fema	les 75.9	64.1	57.2	50.9	47.0
Total Early Cancer	90.5	81.7	75.2	67.5	63.4
Latin American Males	78.2	60.1	53.7	47.1	45.4
Other Males	92.4	86.1	81.2	73.0	69.3
Latin American Fema	les 83.3	67.4	53.9	46.7	41.4
Other Females	91.4	82.4	75.5	68.5	63.9
Total Advanced Canc	er 35.7	18.5	12.4	8.4	7.5
Latin American Males	28.9	12.9	7.1	3.4	-
Other Males	29.2	14.7	9.5	6.5	5.9
Latin American Femal	les 38.6	18.7	11.9	7.0	
Other Females	41.9	23.8	17.1	12.7	10.6

The survival rates for cancer of the thyroid are 69.8 per cent at five years and 68.5 per cent at 10 years. This is another site that has an excellent prognosis after three years. The rate for cancer of the breast is 38.3 per cent at five years, 30.8 per cent at 10 years and 25.9 per cent at 15 years. Survival rates for lung cancer, squamous cell type, at five years are 4.1 per cent for males and 2.4 per cent for females. The 10 year survival rate of 5.9 per cent for cancer of stomach is similar to the figure often given for five year rate in large series. The five year rate in this series is 8.8 per cent. The survival rates for liver, gall-bladder and pancreas are low. Those for the intestines and rectum are low also, due to the num-

ber of patients who came for treatment in an advanced stage of the disease.

The survival rates of 19.1 per cent at 10 years for the urinary tract cancers and of 15.0 per cent for cancers of the prostate should be considered in view of the fact that half of all individuals in both groups are over 70 when they are first diagnosed.

The survival rate for both the corpus and cervix of the uterus are high for a countywide series including all stages of disease; 26.6 and 35.3 per cent respectively at 15 years. The five year survival rate for cancer of the ovary is 26.4 per cent; the 10 year rate of 15.1 per cent.

Table 4
End Results By The Modified Life Table Method

·	Cancer	By Site			
	1 Yr.	3 Yr	5 Yr.	10 Yr.	15 Yr.
Malignant Melanoma	76.3	54.2	40.5	3 7.5	-
Skin Squamous	95.1	90.6	84.8	74.3	71.6
Skin Basal	97.1	94.2	90.6	84.8	81.2
Soft Tissues	74.4	55.9	50.5	43.9	38.8
Skeletal System	33.3	20.6	20.6	19.1	-
Central Nervous System	19.2	12.6	9.4	-	-
Lip	95.9	91.2	88.1	83.1	75.0
Buccal Cavity & Pharynx					
Exc. Lip	61.8	51.8	47.0	40.6	39.9
Thyroid	79.9	71.9	69.8	68.5	-
Breast	69.8	50.8	3 8. 3	30.8	25.9
Lung Squamous Males	22.9	5.4	4.1	-	-
Lung Squamous Females	29.4	9.7	2.4	-	-
Stomach	24.1	10.8	8.8	5.9	-
Liver & Gallbladder	13.6	4.9	2.8	-	-
Pancreas	7.7	2.8	-	-	-
Intestines	44.6	23.5	19.3	15.7	-
Rectum & Anus	51.7	24.7	20.7	15.9	-
Kidney	45.8	26.9	16.6	13.5	-
Urinary Tract	59.5	33.8	27.4	19.1	-
Prostate	56.4	37.1	24.9	15.0	-
Corpus Uteri	72.6	51.5	35.9	30.5	26.6
Cervix Uteri	73.9	55.8	45.7	38.9	3 5. 3
Ovary	48.9	36.6	26.4	15.1	-
Leukemia Adults	35.0	12.2	5.9	-	~
Reticuloendothelial					
System	3 5. 9	15.9	7.7		-

Table 5

End Results By The Modified Life Table Method Selected Sites, Early and Advanced

	· ·		
	3 Yr.	5 Yr.	10 Yr.
Buccal Cavity & Pharynx			
Exc. Lip			
Early	71.0	65.7	58.4
Advanced	21.7	17.2	-
Thyroid			
Éarly	90.2	86.7	84.8
Advanced	45.4	45.4	
Breast			
Early	75.3	62.5	51.7
Advanced	33.3	21.2	16.1
Intestines			
Early	45.5	41.8	34.7
Advanced	9.7	4.7	
Rectum			
Early	37.0	32 .8	27.1
Advanced	10.5	6.4	
Prostate			
Early	57.4	39.9	25.5
Advanced	21.5	13.4	
Corpus Uteri			
Early	63.3	43.5	37.7
Advanced	22.4	18.1	-
Cervix Uteri			
Early	71.0	58.1	50.2
Advanced	27.6	22.7	17.5
Ovary			
Early	69.2	52.2	2 8. 7
Advanced	15.3	8.4	-

The survival rate for the combined reticuloendothelial dyscrasias is 7.7 per cent for five years. For adult leukemia it is 5.9 per cent.

Results of Treatment

In table 5, the results of treatment at three, five, and 10 years for selected sites are given by stage of disease at time of diagnosis to demonstrate the life saving importance of early treatment. The survival rate at five years is from two to 10 times as high in early as in advanced disease. The most marked difference is in the intestinal and rectal cancers. The five year survival rates for disease early or advanced on admission are respectively; for intestines 41.8 per cent and 4.7 per cent; for rectum 32.8 per cent and 6.4 per cent. The difference in cancer of the ovary is more than six times. The survival rate is three times higher for early as advanced breast and for early as advanced prostate.

A study of the death rates, adjusted to remove the differences due to age alone was made for the state as a whole and for El Paso County. For the state as a whole, the trend is rising although the rate of increase is declining. For El Paso County, the death rate from cancers has gradually been decreasing at the rate of 1.37 per 100,000 population, even though half of the patients excluding those with skin cancer—did not seek treatment until their disease had already spread. This life-

saving parallels the increased interest in the El Paso County Medical Society's follow-up program to keep treating cancer patients. Surgery, radiation and drugs alone or in various combinations are used to obtain these beneficial results.

The detailed 275 page report of the program to the 240 physicians in El Paso County is the first step in the evaluation of the data. The physicians plan to study each area of cancer to discover, if possible, reasons for differences that the initial study has brought to light in the response to treatment of specific sites of cancer under different conditions. By understanding these differences, physicians and patients can work together toward earlier recognition and treatment.

Summary

The results of the program of the El Paso County Medical Society for the detection, treatment and follow-up of every cancer case living or treated in El Paso County has been reported. It covers 16,182 patients who had 17,928 cancers diagnosed and treated for 18 years from 1944 through 1961. El Paso County is a natural medical center and attracts patients from New Mexico and Mexico in large numbers. Nearly half the population is Latin American. Incidence rates of the residents of El Paso adjusted for age to the 1950 population of the United States give the first

valid site by site incidence among Latin Americans. The study demonstrates significant differences in susceptibility to various forms of cancer between Latin Americans and other than Latin Americans living under similar social conditions in the same area.

Acknowledgements

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We are particularly indebted to Miss Eleanor J. MacDonald, consultant epidemiologist at the University of Texas, who, with her staff of trained personnel at M. D. Anderson Hospital and Tumor Institute, Houston, carried out all of the technical work required in starting the cancer follow-up program in El Paso County, and who has maintained the unwavering interest and enthusiasm essential for the successful accomplishment of this program.

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The Deaf Can Hear

C. M. STANFILL, M.D., El Paso

Loss of hearing is a widespread and serious handicap. This defect causes mental, emotional, and financial problems for persons afflicted as well as to their families. Auditory failure warps personality. The victim lives in a world of silence, often avoiding social and business contacts for fear of saying the wrong thing.

Persons who have had successful ear surgery for deafness have one frequent question, "Why Didn't Someone Tell Me About This Before?" Every physician should be able to determine whether his hard of hearing patient can be operated. Ear surgery can help those having an air conductive type loss. These are the cases where the sound is not heard because it does not reach the auditory nerve.

There is one simple test to determine whether the hearing loss is air conductive or is caused by damage to the auditory nerve. The 512 tuning fork is struck on the doctor's knee, and the prongs are held about one inch away from the external opening of the patient's ear. The patient indicates whether he hears the vibration. The still vibrating fork is then placed with the stem or handle against the mastoid process, and the patient again is asked to give a response. This is repeated until it is determined whether the patient hears better with the prongs near the ear or with the stem of the fork against the mastoid process. The patient who hears better with the stem of the tuning fork against the mastoid bone has an air conduction loss and is a possible candidate for ear surgery.

The physician should also advise patients who wear a hearing aid to have the cause of the deafness diagnosed by an Otologist trained in microsurgery.

In my series of 351 stapes procedures performed since January, 1959, for Otosclerosis, 90 per cent of the patients obtained serviceable to normal hearing. Only three of the cases failed to respond to the pre-operative level. For the past three years, total stapedectomy using a wire prosthesis has been the preferred procedure.

In the same period, over 100 ear drum perforations were repaired using vein, ear canal skin, and temporal fascia singly or in combination as the grafting material. Different methods were used to repair the ear bones so that sound could be transmitted to the auditory nerve. The grafts healed in 85 per cent of the cases, and the hearing was improved in 75 per cent of the cases.

Persons of any age with an air conductive hearing loss should be considered as possible candidates for corrective surgery. Most of this surgery is done under local anesthesia, and the average hospital stay is less than 48 hours. The patient usually is away from work four or five days.

Tremendous advances have been made in the past ten years in micro-surgery of the ear for relieving deafness. In view of this progress, it may not be too much to expect that the next decade will find techniques capable of correcting nerve type deafness.

University Towers 1900 N. Oregon St.

Porphyrin Therapy

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The development of a non-toxic, metabolically-active porphyrin compound is of major importance. Those familiar with porphyrin metabolism and porphyrinic enzyme interrelationships with all other enzyme systems in health and disease will grasp the significance of this statement. Clinicians will be more interested in the observations that clinical and research studies with this product to date indicate that its use:1-14

- 1. Relieves pain in heart disease (angina pectoris).
- 2. Lowers cholesterol and assists in the reduction of high blood pressure.
- **3.** Increases energy, endurance and mental alertness.
 - 4. Inhibits certain types of cancer.
 - 5. Protects against irradiation.
- 6. Affords protection against the toxic effect of chemicals used in the treatment of cancer. (i.e., cytoxan and thiotepa).
 - 7. Combats anemia.

Recognition of the fact that many disease states and symptoms of dysfunctions are due to interference with enzymatic activity on a cellular basis opens the door for treatment directed at causative factors. Clinical improvement in patients resulting from this type therapy is the result of normalization of enzyme chemistry.

The continuing research into biochemical mechanisms being reported in the press is rapidly making it impossible for the practicing physician to disclaim knowledge or interest in the nutritional requirements for enzyme synthesis and function or the environmental chemicals and heavy metals that inhibit enzyme function or block enzyme synthesis. Of particular interest is the observation that the effect of the majority of toxic

chemicals and heavy metals is produced by interference in porphyrin enzyme synthesis or function. 15-19

Knowledge of porphyrin enzyme synthesis and the biochemical transformation of the pyrrole pigments has only recently become available through the use of isotopic labelling techniques. These studies reveal that only protoporphyrin IX, derived from the isomer III series as a result of isomer specificity of the involved enzyme systems, can be utilized in the formation of hemoglobin, myoglobin, catalase, cytochrome oxidase, cytochrome a, b, c and other essential porphyrinic enzymes.¹⁸

Note here that the macrocyclic rings of chlorophylls a and b are derived from the same parent structure of the isomer III series.²⁰ This fact may explain the metabolic utilization and lack of toxicity encountered with the product under discussion. Chemical toxicity relating to porphyrin synthesis appears to divert porphyrin precursors into the physiologically unusable isomer I series.¹⁸ Congenital porphyrias result from a similar diversion due to hereditary enzyme defects.¹⁸

Basic Materials

The rationale for porphyrin therapy with a metabolically-active porphyrin of the isomer III series is based on biochemical insight into pathologic physiology. Such a product would supplement basic materials available for heme-derived enzyme synthesis, or participation with naturally occurring insomer III series porphyrins in chelation and detoxification mechanisms.

The clinical indications for porphyrin therapy can be stated as follows:

- 1. Acute and chronic chemical poisoning when associated with increased excretion of copro-porphyrin and uro-porphyrin type I.
- 2. Persistent symptoms related to anoxia or known defects in oxidative metabolism. Correction of nutritional deficiencies and imbalances as described by Roberts⁴⁷ is essential in this group of patients which include a surprisingly-large percentage of patients classified as having allergic, collagen and degenerative, psychosomatic, mental and other chronic disease states.
 - 3. All cardiac patients with angina pectoris.

4. Malignancy of all types. Demonstration by Kosaki and others that production of a specific phospholipid is common to all types of cancer cells: that this phospholipid has a marked affinity for porphyrin, and that when bound to porphyrin loses its toxic effect, explains much of the improvement noted in cancer patients treated with porphyrinic compounds.21-44 Cancer chemotherapeutic agents which depress porphyrin synthesis create a double-barrelled demand for metabolic support with porphyrin supplementation. Rassmussen-Taxdal, Ward and Figge⁴⁵ demonstrated the affinity of malignant tumors for injected hematoporphyrin and Figge and Wichterman⁴⁶ demonstrated that addition of 1/500,000 hematoporphyrin to suspensions of paramoecia rendered them twenty times more susceptible to the lethal effects of X-irradiation. Recent studies demonstrate tumor concentration of the porphyrin compound under discussion here.14

The porphyrin product used in the studies1-14, 48 referenced herein is produced by the Texophyl Corporation, Boling. Texas and has been identified variously as Phyltone, Pochlorin. IC-6003, AY-6111. R-13-374, and AY-171.

The product is a water and alcohol-soluble mixture porphyrin of the etioporphyrin type III classification. The drug is a grey-blue crystalline material that can be recrystallized from a variety of solvents. The reproducibility of the various batches of the compound appears relatively accurate and the material is stable in the absence of light or excessive heat over long periods of time.

The porphyrins in this mixture are free from heavy metals and are present as the potassium salt. The pH of a concentrated solution is 8.5. Acute and chronic toxicity studies have been carried out by Terrell Laboratories of Fort Worth. Texas, the University of Montreal, Canada, and others.14 As might be expected from the nature of the compound, the acute LD₅₀ is very high, approximately nine grams/kg. IP in mice. Terrell fed rats doses as high as 7.5 grams/kg, daily for periods of six months without noting toxicity relating to the drug.

Examination

On histopathologic examination no signficant pathology was noted. Selye48 made a somewhat more extensive survey utilizing the subcutaneous and intraperitoneal routes in addition to oral administration. Orally he initially used doses of 10 mg/kg., 100 mg/kg. and 1,000 mg/kg. in three groups of rats gradually increasing the doses to 160, 1,600, and 12,000 mg/kg, respectively.

SO doses ranged from 0.5 mg/kg., 2.5 mg/kg. and 5 mg/kg in only one group of rats. Animals were administered the drug over a period of 41 days. Again no histopathological or gross changes of significance were noted even after these massive doses. Photosensitivity has not been encountered in patients receiving this product; the only untoward reactions occasionally encoutered were diarrhea, mild abdominal discomfort and disten-

The results of the porphyrin therapy reported here indicate the need for further long-range clinical studies in angina pectoris, cardio-vascular disease, arthritis, acute and chronic chemical toxicity states and malignancy. Laboratory research relating to the areas of chelation, detoxification and irradiation are needed to elucidate mechanisms of action. While these studies are being arranged and reported, will you be one of those who could have enjoyed a longer, healthier life because of porphyrin therapy?

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MOU 29 1963

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1. McCarthy, C. G., and Finland, M.: Absorption and Excretion of Four Penicillins, New England J. Med., 263:315, 1960.

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1. Weingarten, 8.; Weiss, J., and Simon, M.: A Clinical Evaluation of a New Antidiarrheal Agent, Amer. J. Gastraent, 35.628-633 (June) 1961. 2. Hack, C. W.: Relief of Diarrhea with Diphenaxylate Hydrachlaride (Lamatil), J. Med. Ass. Georgio 50.485-488 (Oct.) 1961.

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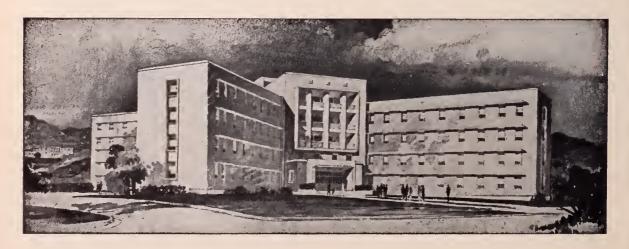
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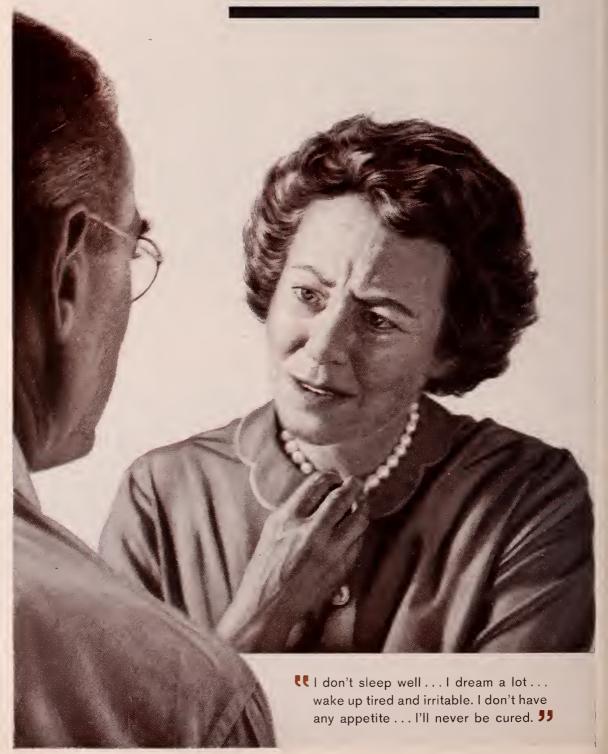
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REFERENCES: 1. Siegler, P. E., in Nodine, J. H., and Moyer, J. H. (Editors): Psychosomatic Medicine, The First Hahnemann Symposium, Lea & Febiger, Philadelphia, 1962, p. 582. 2. Lapolla, A.: Western Med. 2:383 (Sept.) 1961. 3. Yoss, R. E., and Daly, D. D.: Pediatrics 25:1025 (June) 1960.

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COMING MEETINGS

Southwestern Medical Association, 45th Annual Meeting, Holiday Inn. El Paso, Nov. 14-16, 1963.

Medical Society of the United States and Mexico, Annual Meeting, Guadalajara. Jal. Mexico, Nov. 20-22, 1963. For information write to Charles Kalil, M.D., 200 E. Monterey Way, Phoenix, Arizona.

American College of Physicians, first Sectional Meeting (Midwest), Sheraton-Cadillac Hotel, Detroit, Nov. 21-23, 1963.

American Medical Association, 17th Clinical Meeting, Portland, Oregon. Dec. 1-4, 1963.

AMA Symposium on Alcoholism, Ramada Inn, Tucson, Dec. 6 and 7, 1963.

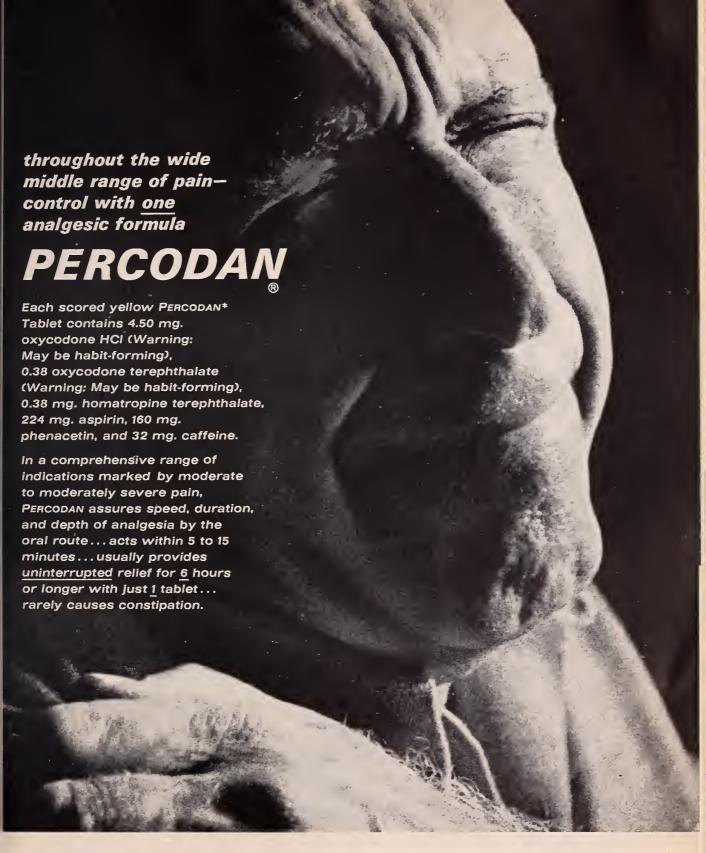
Arizona Heart Association, Seventh Annual Cardiac Symposium, Arizona Biltmore Hotel, Phoenix, Jan. 24 and 25, 1964.

American College of Allergists Graduate Instructional Course and 20th Annual Congress, The Americana. Bal Harbour, Miami Beach, Fla., Mar. 1-6, 1964.

University of Colorado School of Medicine, Fifth Postgraduate Course in Medical Technology. Denver, Mar. 16-21, 1964.

New Mexico Medical Society, 82nd Annual Meeting, Ramada Inn. Carlsbad, April 13-17, 1964.

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ORIGINAL ARTICLES

Actinospectacin — A New Antibiotic*

ROBERT J. MARSH, CAPT., MC

and

FRANK E. CECCARELLI, MAJ., MC

Fort Sam Houston, Texas

Actinospectacin Sulfate† is a new intramuscular, broad spectrum antibiotic produced in the fermentation broth of an actinomycete, streptomyces spectabilis.¹ In vitro studies with this agent have shown it to compare favorably in spectrum with chloramphenicol.² Previous in vivo studies on a small group of patients have exhibited favorable clinical and bacteriological responses, without serious side effects.³ Further investigation of actinospectacin was undertaken on the Urological Service at Brooke General Hospital.

Methods and Materials

Twenty-two hospitalized adult male patients with acute genito-urinary infections received this drug. The infections consisted chiefly of prostatitis and epididymitis (Table 1). Because of the uncertain efficacy of the drug, no critically ill patient was treated with actinospectacin.

The first 16 patients in the series received 400 mg, every six hours while the remainder received 800 mg, every six hours. Length of treatment

varied from three to 14 days (Table 2). No other antibiotics nor chemotherapeutic agents were used in conjunction.

Laboratory studies measuring the renal, hepatic, and hematologic status were obtained before treatment was instituted and then at three day intervals while the patients were on therapy.

Local reaction at the site of injection (i.e. pain, swelling, or erythema) was observed and recorded by the nurse administering the drug.

TABLE 1
Acute Infections Treated

Diagnoses	Number of Patients
Prostatitis Epididymitis	8 7
Cystitis	3
Peri-urethral abscess	1
Torsion of spermatic cord	1
Total	22

The results were classified in three categories: good—when the clinical response was adequate and the organism which had been isolated prior to treatment was eradicated; fair—when the clinical response was adequate but the pretreatment organism was not eradicated or was replaced by

^{*}From the Urological Service, Department of Surgery, Brooke General Hospital, Brooke Army Medical Center, Fort Sam Houston, Texas.

[†]Trobicin, Upjohn Company

TABLE 2
Length of Treatment

Number of Days Treated	Number of Patients
3	1
4	3
5	3
6	3
7	4
8	1
10	1
11	3
12	2
14	1
	22

another organism; poor—when the clinical response was not acceptable and the pretreatment organism was either unchanged or replaced by a different organism. Those patients who had sterile urine cultures pre- and post-therapy were classified according to clinical response only. If complications arose while on actinospectacin therapy, the results were classified in the poor category.

Results

Nine patients (40.9 per cent) were judged to have good results, ten (45.8 per cent) had fair results, and three (13.3 per cent) had poor results following actinospectacin therapy (Table 3).

TABLE 3

	Results of Treatment	
Results	Number of Patients	%
Good	9	40.9
Fair	10	45.8
Poor	3	13.3
	4	
Total	22	100.0

Escherichia coli was cultured from the urine of five patients prior to treatment; in two of these the urine was sterilized while in the remaining cases, the organism was unchanged or replaced by a different organism. Staphylococcus epidermis was recovered from the pre-treatment urines in four patients; post treatment urine cultures were

unchanged in one case and grew peptostreptococcus, E. coli and pseudomonas aeruginosa in the other three. Ps. aeruginosa was cultured from three pre-treatment urines; it remained unchanged after therapy in one instance and was replaced by staphylococcus epidermis and E. coli in the other two patients.

In one patient, aerobacter sp. was recovered from the pre-treatment while the post-treatment urine was sterile. Pre-treatment urine cultures were sterile in nine patients; all remained sterile during therapy except in one instance where Ps. aeruginosa was recovered at the completion of therapy (Table 4).

Therefore, of 13 positive pre-treatment urine cultures, only three (23 per cent) became sterile after actinospectacin therapy.

The increased dosage of actinospectacin (800 mg.) used in six patients in the series appeared to increase the efficacy of the drug. Four of these six patients had "good" and two had "fair" results. The patients with "good" results had sterile urines pre- and post therapy. The two patients classified as "fair" actually had excellent clinical responses; their post-treatment cultures of staphylococcus epidermis were probably contaminants (Table 5).

Careful evaluation of the liver, renal, and hematological studies performed before, during, and after treatment with actinospectacin revealed no evidence of liver nor renal toxicity nor bone marrow depression. In one patient, however, nausea and vomiting developed after 24 hours of therapy which promptly resolved subsequent to cessation of the drug.

Significant pain (more than with other antibiotics such as penicillin and chloramphenicol) at the site of injection was noted in 11 patients (50 per cent). There was no unusual erythema nor swelling.

TABLE 4
Bacteriological Responses to Actinospectacin

Number of Patients	Urine Sterile After Treatment	Organism Unchanged on Treatment	Organism Changed on Treatment
5*	2	1	1
4		1	3
3		1	2
1	1		
9	8		1
22	11	3	7
	Patients	Number of Patients	Number of Patients After Treatment Unchanged on Treatment 5* 2 1 4 1 1 3 1 1 9 8

^{*}One patient's post-treatment urine culture lost

TABLE 5

Bacteriological Responses to 800 mg. Actinospectacin Every 6 Hours

Pre-Treatment Urine Cultures	Number of Patients	Post-Treatment Urine Cultures
Escherichia coli	1	Staphylococcus epidermis
Pseudomonas aeruginosa	1	Staphylococcus epidermis
No growth	4	No growth
	-	
•	Total 6	

Discussion

Accumulated evidence suggests that acute genito-urinary infections must be promptly and adequately treated to prevent the development of complications such as chronic pyelonephritis. (6, 7) .The purpose of this investigation was to determine the value of actinospectacin in the treatment of acute genito-urinary infections.

Previous investigations have reported on oral antibiotic and chemotherapeutic agents which are effective in obtaining clinical and bacteriological cures in 70-89 per cent of acute genito-urinary infections. 4.5,6.8 In the present series, using a parenteral antibiotic, only 40.9 per cent of patients with similar infections obtained a comparable result. However, increasing the dosage of actinospectacin from 400 to 800 mg. every six hours appeared to increase the efficacy of the drug. This trend warrants further investigation.

Summary

Twenty-two adult male hospitalized patients with acute genito-urinary infections were treated with actinospectacin, a new broad spectrum injectable antibiotic. Good results were obtained in only 40.9 per cent of patients as compared to 70-89 per cent "cures" reported with other antibiotic or chemotherapeutic agents.

Toxicity with actinospectacin was negligible.

Pain at the site of injection was significant in 50 per cent of patients.

Increasing the dosage from 400 to 800 mg. every six hours appeared to increase the effective-

ness of the agent. Further clinical trial with the increased dosage appears warranted.

Actinospectacin is available for investigational purposes only from the Upjohn Company.

We gratefully acknowledge the assistance given us by J. B. Lawson, M.D., of the Upjohn Company, during this study.

This material has been reviewed by the Office of the Surgeon General, Department of the Army and there is no objection to its presentation and/or publication. This review does not imply any indorsement of the opinions advanced or any recommendation of such products as may be named.

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Management of Sprained Ankle

W. E. LOCKHART, M.D., Alpine, Texas

Sprained ankle is the most common injury of athletics, especially in baseball and football where cleats are used to provide unnatural traction beneath the foot. The sprain is of two main varieties: inversion (the more common type) when the foot rolls inward, tearing and/or straining the lateral ligaments of the ankle joint, and eversion when the sole of the foot rolls outward, frequently fracturing the tip of the medial malleolus and, if severe, resulting in a fracture of the fibular shaft and disruption of the tibio-fibular synarthrosis loosening up the box joint resulting in future instability. Eversion sprains are, therefore, usually more serious.

Prevention of sprains is accomplished in most instances by proper taping of the ankles. Taping is frequently improper and inadequate and results in loss of speed by the athlete. A common example of this is the familiar "figure of eight" taping in which the tape is crossed in front of the ankle joint passing alternately over and under the foot and around and behind the lower foreleg.

When the foot is dorsiflexed, this tape is loose and provides no protection to the ligaments of the ankle joint, and such taping limits the full extent of plantar-flexion (extension) of the joint and deprives the athlete of the speed gained from the final push-off by the foot that is comparable to the wrist-whip in throwing.

Taping

To be effective the tape must be anchored to the foreleg above the ankle by a turn of tape around the leg not less than 10 inches above the floor. Hair should be shaved and all soap and moisture removed from the skin so that the tape will adhere. Then several one inch strips of tape are applied, passing from the anchor tape over the malleolus, under the heel and over the other malleolus and to the anchor tape on the other side. This is done with the ankle joint slightly inverted if the sprain is of the eversion type and the opposite if inversion. This is for the purpose of preventing the sprained ankle-joint from moving into the position which caused the sprain in the first place. This prevents the torn tissues from being pulled apart during the healing process.

If no sprain exists, the ankle should be taped in a neutral position from side to side but with a slight "foot drop" so that there will be no strain on the tape when the athlete is "on his toes". Four or five strips of tape are applied passing under the heel, and then additional tape is applied being careful at all times to keep the tape flat against the skin and not "biting" into the skin in a manner to hold the "stirrup" tapes in place and finally to anchor the strips to the original turn around the foreleg.

If the tape is properly applied, there is very

little limitation of extension of the foot and, therefore, very little loss of speed by the athlete. Such taping should be comfortable, giving the athlete a feeling of security and should never be tight enough to interfere with circulation or sensation in the foot.

Diagnosis

The diagnosis of ankle sprain should always include X-Ray film and a minimum of two views, "anterior-posterior" and "lateral" and preferably also "oblique" views. The "anterior-posterior" view should be taken with the foot "pigeon-toed" inward just enough to give a clear view of the space between the distal fibula and tibia and to make sure that the box joint of the ankle is not loosened up. It may be necessary to repeat the X-Ray films a few days later, and occasionally fractures will be seen which were not apparent on the first films.

It should be recognized that there can be some architectural disruption in bone without apparent fracture lines in the X-Ray film, particularly in undisplaced fractures. Cartilage, ligaments and fasciae do not show up in the X-Ray and are judged only by inference from the spacing between bony structures. The joint should not be moved into extreme positions to demonstrate the presence of a sprain, for this may induce further bleeding into the torn tissues, and an excess of blood in the tear may hold the torn edges apart and delay the healing process. Pain and tenderness are reliable guides to the existence of a sprained ankle in an athlete, who is unusually sensitive to pain.

Treatment

The *immediate* treatment of a sprained ankle on the athletic field is of utmost importance and should consist of *immediately* getting off the ankle and avoiding *any* movement of the ankle. In modern athletics it is bragging for an athlete to assume that he is better for the team with a sprained ankle than his substitute without a sprained ankle: therefore, the injured athlete owes it to his team to retire immediately from play and treat his injury in a manner which will insure his return to the line-up at the earliest possible time.

The shoe and sock should be removed and a very tight Ace bandage three inches wide applied to the ankle, and the ankle with the bandage in place should be immediately packed with cracked ice. These measures prevent bleeding into the torn

tissues and will speed healing. Pain is also relieved. The "very tight" bandage should be removed in one hour, as should the ice pack, and a smooth, firm Ace bandage applied. Aspirin and Copavin by mouth should suffice to relieve the pain.

The athlete should not walk on the injured ankle for at least twenty-four hours, depending on the severity of the injury, and he should go on crutches, keeping the foot from contact with the ground. The injection of local anesthetics into an acute sprained ankle is mentioned only to be condemned. It is not wise nor is it fair to the man nor to his team-mates. He should have a substitute until his injury has healed sufficiently for his return with full efficiency, and proper care will speed the day.

Cast

A plaster-of-paris cast should *not* be applied immediately because of possible swelling inside the cast. A non-walking cast applied *after* the danger of swelling has passed is a good idea when one is dealing with an idiot or an egotistical athlete too foolish to rest an injured ankle for a few days. However, a cast has a remarkable tendency to weaken muscles and should be avoided for this reason. The cast does give the athlete dignity and assures doubting team-mates that he is not "yellow" if such is needed.

After twenty-four hours all compression bandages should be removed so there will be no impairment of circulation, and the ankle should be lightly taped for the purpose of preventing the joint from moving into the position which tore the ligaments and fasciae. How soon the athlete can begin to walk on the ankle will depend on the severity of the injury, and this decision should be made in each individual case by the attending surgeon rather than by the athlete himself or his coach, either of whom may be too eager for his return into play.

Warm whirl-pool bathing, gentle massage that does not abraid the skin are excellent as is also infra-red heat that does not burn the skin. All "hot stuff" and other irritants should be avoided lest the skin be affected resulting in a condition which makes the use of athletic tape ineffective. Skin should be bathed daily using Phisohex as a soap and germ killer. Athletic tapes available have pores for ventillation and are non-irritating

to normal skin. Diathermy and Ultra-Sound are mentioned only to be condemned, as either can do great harm. Diathermy can overheat deep tissues and thus delay healing. Ultra-Sound can disrupt the microscopic architecture of bone and thus weaken bone.

Remember that the bone in a sprained ankle may have been subjected to architectural stress short of producing visable fracture, and further disruption of this architecture by Ultra-Sound could do only harm. There is no experimental evidence that the healing of torn fascia or ligaments is speeded by Ultra-Sound, such tissues in a healthy athlete can be expected to heal usually in fourteen days provided the torn tissues are not separated or infected. There is no known method which will speed this healing process, but overactive use, anesthetics, too much heat or Ultra-Sound can definitely delay the healing process.

Summary

An athlete with a sprained ankle should be immediately replaced on the field, and he should immediately rest the injured ankle. A tight elastic bandage should be applied and the ankle packed in ice, removing both the bandages and the ice in one hour. Pain should be relieved by drugs, if necessary. The injured ankle should subsequently be splinted either by plaster cast or by adhesive tape (depending on the surgeon's judgement), and the athlete returned to play only after proper healing has occurred and not in accord with the athlete's or his coach's wishes. Diagnosis should include X-Ray film in various views, repeated if needed. The use of local anesthetics into the injured tissues is condemned as is excessive heat, diathermy or Ultra-Sound.

401 N. 4th. St.

AMA Symposium in Tucson

The American Medical Association National Symposium on Alcoholism will be held Dec. 6 and 7, 1963, at the Ramada Inn in Tucson.

Participants in the symposium will be members of the AMA National Committee on Alcoholism, Dr. Marvin Block, chairman, Dr. Clifton J. Alexander of Tucson is chairman of the symposium.

Clinical Pathological Conference

R. E. THOMASON GENERAL HOSPITAL, El Paso

F. P. Bornstein, M.D., Editor

Case #47848 — September 6, 1963

Presentation of Case by: Dr. Jim B. Brame*

History

Chief Complaint "Sick," for five months duration.

Present Illness

The patient stated that he had been nauseated, and had vomited a great deal for the past five months. He saw one doctor who said he needed surgery, however, the patient went to another who treated him with "shots." When seen by the clinician, the patient was very icteric, had had loss of weight of an undescribed amount, was anorexic, weak, and had been unable to eat for one or two days. It was noted that it was difficult to determine whether the patient had vomited blood or whether he had had black tarry stools,

Review of Systems

The patient had apparently been in good health until the present illness. He had been seen once on an outpatient basis, at which time an alkaline phosphatase of 35 units and a bilirubin of 11 mg. per cent were obtained.

Past History

Very "vague" is the only comment.

Personal History

The clinician was unable to elicit any history of contributory importance. There is no mention of family history.

Physical Examination

On physical examination, the general status was an asthenic white male in acute distress. The skin and mucous membranes were icteric and dry. Head and neck examination revealed normo-cephaly with an icteric scalp. The pupils were equal and reacted bilaterally to light. The ears were clear, no significant changes in the teeth, and neck was supple. The thyroid gland was not enlarged. The thorax and lungs were essentially clear to percussion and auscultation, and with normal breath sounds. There was no enlargement of the breasts.

The heart had a normal sinus rhythm, with no murmurs, and the PMI at the 5th intercostal space at the left inid-clavicular line. The abdomen was protuberant, with a tight abdominal wall. No fluid wave could be felt and the liver and spleen were difficult to outline. There was a questionable mass in the epigastrium. A pelvic and rectal examination was deferred. Back and extremities were negative, except for icterus. The neurological examination was considered within normal limits.

^{*}First year resident, general practice, Thomason General Hospital.

The admitting laboratory work was as follows:

CBC: W.B.C. 6,300, with 77 polys., one band, 21 lymphs., and one eosinophil. Hct. 47 vol. per cent. Hb. 15.1 gm., and a note was made that the plasma was very icteric.

BUN was 10.7 mgm. per cent.

Total Protein: 6.3, with 2.7 albumin and 3.6 globulin, with an A/G ratio of .75 to one. This was repeated at an undated time, which showed a total protein of 7.3, with a 3.8 albumin, and 3.5 globulin.

On admission, the alkaline phosphatase was 40 Bodansky Units, the SGOT 200; glucose 82, icteric index 39.5 units, direct bilirubin 6; indirect bilirubin 12, thymol turbidity 2.3. Cephalin flocculation was 4+ in 24 hours and 4+ in 48 hours. The serology was negative. Urinalysis showed a color of brown and cloudy with an acid reaction, a trace of albumin and negative sugar, and specific gravity 1.030. There were rare white blood cells, three to five red blood cells, frequent epithelial cells, 1+ bacteria, and numerous amorphic crystals. The stool examination was positive for occult blood; no parasites or ova seen; repeated six days later with the same report. On both occasions many pus cells were seen. The EKG was read as normal.

Course in Hospital

The patient remained afebrile, with blood pressure range between 122 to 90 systolic, and 90 to 60 diastolic, and a pulse range between 70 and 98. The respirations rate was between 18-24/minute.

On admission, the patient was given 1000 cc. of five per cent dextrose and water, a low protein diet, multiple vitamins, Achromycin and Tigan. Chest films revealed pulmonary fibrosis with possible acute process in the right upper lobe. Repeat films three weeks later showed increased bronchovascular markings with an area of discoid atelectasis at the left base. A paracentesis was done on the second day, in which 1500 cc. of turbid yellow fluid was removed, which had no odor. A cell block was reported as containing malignant epithelial cells with giant tumor cells. The specific gravity was 1.011 and there was no bacterial growth after 48 hours. On the third day, an I.V.P. was done which showed a space-occupying lesion

at the left kidney displacing the kidney two inches downward, with a filling defect of the upper pole. A compression fracture of L-4 was noted.

A genitourinary examination at this time revealed that there was essentially a negative history, except for testicular injury 20 years ago. There has been no urinary symptoms and no bleeding reported. The physical examination revealed left costovertebral tenderness more than on the right; no masses were felt. The genitalia were thought to be normal, with the prostate being a Grade II.

The patient continued on a downhill course, becoming increasingly weak, with accumulating ascites and rare occasions of vomiting. A barium enema was reported as negative. As the ascites increased, the patient became more anorexic and developed respiratory distress. On the 12th day, a repeat paracentesis removed 5,400 cc. of the same fluid, which resulted in an increase in appetite. Two days later, it was noted that the patient vomited and had scrotal swelling. There was increased pruritis. Repeated paracenteses were done, 4,000 cc. were removed on one occasion, 5,000 on another, ten days later, and several hours prior to expiration, 3,000 cc. more were removed.

Two hours before death, the vital signs were: Blood pressure 112/82, respirations 32, pulse 80, temperature 98.4.

Clinical Discussion

We have here a middle-aged male who has experienced recent weight loss and anorexia. He is weak and cachectic, he has massive ascites, and has become increasingly jaundiced over the hospital course. Since malignant cells were found on an abdominal tap, one would suspect that the abdomen either contains the primary tumor or is the seat of most of the metastases. Consideration must be given to the type of death of this individual. Three types may be considered, 1. cardiovascular collapse, 2. respiratory death, or 3. some other cause such as hepatic coma.

Just prior to death there was the removal of 3,000 cc. of ascitic fluid. This, and the presence of hepatic disability might lead one to suspect that the results of the removal of this much fluid had resulted in hepatic coma with apathy, confusion and presence of flapping tremors of the extended arms; or that this produced a cardio-

vascular collapse due to the rapid removal of the fluid with resultant electrolyte imbalance and hypoproteinemia. We do not have a BUN, NPN nor a blood ammonia terminally, so we don't have much information as to the uremic or azotemic status of the individual.

A few points may be made concerning some of the findings here. Occult blood was reported in the stool and this is probably a valid finding, since the patient was on a low protein diet. Therefore, intramural involvement of the tumor, either from a primary or metastatic site may have produced the bleeding, or the bleeding may have been caused by the hemorrhagic tendency common in liver involvement. However, we also might suspect that this metastatic or primary tumor involvement may induce an inflammatory change in the intraluminal structures since many pus cells were seen in the stools.

The urine is described as brown, but we have no report as to the urobilinogen level. However, we would not suspect a hemoglobinuria from the hemolytic process although the indirect bilirubin is quite high. This is probably just another manifestation of obstruction in the biliary tree.

Liver Damage

We find that the liver is damaged in two ways: 1. obstructive, since the alkaline phospatase is increased to 40 with an increase of the direct and indirect bilirubin level; 2. that there is parenchymal damage indicated by a low A/G ratio. Although the thymol turbidity is not remarkable, the cephalin flocculation test shows 4+ in 24 and 48 hours. Nothing spectacular about the total proteins is noted. An SGOT of 200 units would also indicate that there is parenchymal cell damage.

So, then, we have an obstructive disease with liver damage. The question is, and it is a constant question, did obstruction cause the liver damage, or is there another cause for the damaged cells? I believe the latter since complete obstruction would hardly cause this much ascites except in connection with parenchymal damage or—as we will note later—with venous obstruction due to metastatic invasion. We now shall give some consideration to the type of tumor that may be involved here.

Firstly, we think of a primary tumor in the

liver such as a hepatoma. The hepatoma constitutes 20 per cent of all the tumors in the Asiatic countries but in the Western hemisphere only one per cent. These sufferers are in their late 50's and 60's. There are two types of tumor cells. One is the liver cell carcinoma and the other is the duct cell carcinoma, the latter being chiefly in women and thought to follow prior insults to the biliary system. However, metastasis in both these types occurs throughout the liver substance.

Venous thromboses are seen quite often affecting the hepatic and portal system which can result in massive ascites. One-third of the cases metastasize to the regional lymphnodes and there is frequent metastasis to ribs and vertebrae. Other metastases are rare. Such a tumor could account for most of the findings. A recent review of the literature reveals that the duration of the chief complaint in hepatomas was approximately six weeks, and the chief complaints listed in descending frequency are, 1. abdominal pain, 2. abdominal distention, 3. GI bleeding, 4. jaundice and 5. weakness.¹

All of the patients in this review died within one month of admission with bleeding being the cause of death in approximately 50 per cent. Liver functions tests for those who had decompensated livers showed an average alkaline phosphatase of seven Bodansky units, of course ours here is 40! It was noted also that 87 per cent of all the cases of hepatomas had coincident cirrhosis at autopsy. According to two sources, hepatomas are much more common in association with post necrotic cirrhosis than with the Laennec type, ^{4 5} and it is of interest to note also that in a study of 43 patients with hepatoma, 15 were found to have evidence of past syphilitic infections. ⁶

In our case, there is no history of malnutrition or of increased alcoholic intake or of a severe infectious process which could lead to advanced cirrhosis and this much massive ascites. No mention is made in the history nor the hospital course of upper GI hemorrhage suggestive of an esophagealvarices, spider angiomata, hepaticicterus, testicular atrophy or venous distention of the abdominal wall. Nothing has been said of increased breast size or other changes which could go along with long standing severe liver disease and cirrhosis. In addition to that, we can date the onset

too, so this sickness has been for about a five month duration.

Review of Literature

It is interesting to note, too, that there are abnormal protein features in hepatoma. In another review of the literature approximately 30 per cent had atypical signs and symptoms.² These range anywhere from an acute abdomen and bleeding to goiterus thyroids. If we consider a secondary involvement of the liver, we have the statistics on our side because we know that liver metastasis is seen in 30 per cent of all people with carcinoma at autopsies. In most instances, the primary tumor arises in organs drained by the portal vein, that is the stomach or the esophagus, the intestines and the pancreas. Also the metastases extend from contiguous organs such as the gallbladder and the kidney.

There is the saying that clinically carcinomatous livers are considered sites of metastases until all suspicious distant sizes have been excluded. Although the problem then remains one of secondary, not primary carcinoma, we see ourselves leaning toward the idea that this is probably a metastatic disease. We found that our patient has been on a low protein diet and this is interesting from the point of view of recent research done with rats. Rodents, after injection intraperitoneally with Walker carcinoma cells, were fed low protein diets and had fewer metastases to the liver than those on high protein diet, part of the concept being that this was an alteration of the hepatic soil for metastatic growth.³

This could be a good case for the so-called pancreato-duodenal cancers. In a ten year study at Massachusetts General, there were 136 carcinomas of the head of the pancreas, 24 of the ampulla of Vater, 17 of the common bile duct and six of the duodenum.

Suggestive of ampulla of Vater carcinoma is the obstructive jaundice which could have lead to intra-hepatic damage. I stated though, that I believe that there are probably tumor cells in the liver, and that the ascites is by venous engorgement of these cells or by compression. This we will discuss later. However, while this type of tumor usually metastasizes late, obstruction in the biliary tree which we have here as a presenting symptom is a common symptom.

Against this diagnosis, though, is the absence of a palpable gallbladder. This again could be due to the distortion of the abdomen. We would perhaps expect acholic stools or at least an intermittent white stool, but there is no mention of this and classically with ampulla of Vater carcinoma you usually have a severe anemia, persistent bleeding and tarry stool.

In this individual we see that he had a hematocrit of 42 vols. per cent and hemoglobin of 15.1 gms. Also in ampulla of Vater carcinoma there is chiefly an increase in the direct fraction of the bilirubin where ours in really reversed. We have a higher indirect than direct. I will speak on the other pancreato-duodenal tumors later.

Primary Site

We might give some consideration to carcinoma of the stomach as being the primary site. Our patient is presenting with anorexia and nausea and vomiting and weight loss, however there has been no melaena but we do have occult blood in the stool. Evidently the clinician did not give much consideration to this diagnosis since no gastric analysis with cytology or roentgenographic examination was performed. No Blumers shelf is described nor is Virchows node described, however peritoneal implants in hepatic metastasis are not rare in carcinoma of the stomach.

The other site we might consider as primary is that in the kidney with wide-spread abdominal metastases. An interesting note here is that scrotal swelling is described and it would be interesting to find out which scrotum was actually involved since the left spermatic vein could have been occluded by the mass described on the left and this could have led to varicosities, which could have resulted in the reported finding of scrotal swelling. Sometimes edema is found from these primary tumors of the kidney since there is compression of the inferior vena cava, Metastases, however, are chiefly to the bones, to the lungs with snowball lesions and to the other kidney. One fact that speaks against this as being the primary site is that there has been no history of hematuria and no primary GU symptoms or signs.

Where, then, is the primary? I don't believe that the primary tumor is in the kidney, but we have to go back to our X-ray findings of mass in left kidney region. What structures are there? Foremost, the pancreas. Carcinoma of the head of the pancreas could result in all the symptoms that we have seen. However, it looks as if the mass described on X-ray is not at the head, but rather at the tail of the pancreas. Then, could this be total involvement of the pancreas? One would be hard put to say.

Serum enzyme studies would have been helpful. Along this line, Nardi at Harvard did find an increase in the trypsin levels above 100 units and thought this to be almost diagnostic of carcinoma of the pancreas in the absence of increased amylase and lipase. Also helpful would be a description of the stool since often steatorrhea is a sign of carcinoma of the head of the pancreas.

X-rays would be helpful in that we might see the classical inverted three sign or better yet, mucosal changes that have been described as being hair-like and fixed in the second and the proximal third part of the duodenum. These have been known to be diagnostic in 77 per cent of the



Figure 1

Lung, metastatic carcinoma imitating primary in appearance.

cases with jaundice and 68 per cent of the cases presenting without jaundice.^s Also we have no associated syndromes such as Cushing syndrome, hyperparathyroidism, and bleeding tendencies that are often seen in carcinoma of the pancreas.

Morphology

A word on morphology of carcinoma of the pancreas. There seems to be three types; one a pure ductal carcinoma, second a differentiating ductal carcinoma, and the third the islet cell carcinoma. Multiple thrombi have been seen repeatedly with some types of carcinoma of the pancreas, also in gastric and ovarian tumors. Forty three per cent of the tail of the pancreas have been associated with thrombi, 26 per cent of the body and 14 per cent of the head, but it has now been noted that the thrombi are due to the morphology of the particular cancer cell and not to the location and that 92 per cent of the cases of the differentiating ductal cell type have had multiple thrombi and that these, although occurring most frequently in the tail, are also distributed throughout.

I think probably that this case is pure duct cell carcinoma of the pancreas. I think we would have to flip a coin to say whether the primary was in the body or the head or the tail. I think the entire pancreas is involved. Then at autopsy I think we will see a primary carcinoma in the pancreas with wide-spread metastases or peritoneal seeding and we shall find that the jaundice was probably due to obstruction of the common duct at the head of the pancreas or by hilar metastases, liver metastases and that the cause of death was probably the result of hepatic, vascular collapse ushered in by the recent removal of a great deal of ascitic fluid.

Clinical Diagnosis:

Generalized carcinomatosis.

Dr. Brame's Diagnosis:

Carcinoma of pancreas with metastases.

Pathological Discussion: Dr. F. P. Bornstein

On autopsy we found an emaciated severely icteric 47 year old man. There were 3000 cc. of ascites in the peritoneal cavity. The heart was essentially normal except for the presence of a

few tiny grayish white nodules in the myocardium. The right lung had a rather surprising appearance. Not only was it studded with tumor nodules, the tumor had also infiltrated along the bronchial walls in such a way (Fig. 1) that it gave the impression of a primary carcinoma.



Figure 2
Pancreas, primary carcinoma of tail of pancreas.

Examination of the abdominal organs revealed a large tumor in the tail of the pancreas. There were lymphnode metastases compressing the common bile duct. This was obviously responsible for the jaundice. There were also extensive metastases into the liver and other lymphnodes.

From the gross appearance, therefore, the question was, were we dealing with one or two primary tumors. Microscopic examination, however, revealed that the tumor was obviously adenocarcinoma of the pancreas which was quite well dif-

ferentiated in most of the metastases, especially the heart.

Pathological Diagnosis:

- 1. Carcinonia of the tail of the pancreas with metastases to lymphnodes, lungs, liver and heart.
- 2. Compression of common bile duct by tumor nodules. 3. Generalized icterus.

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If a patient asks for a refill without the physician's authorization, the pharmacist may well worry about calling the physician. Busy physicians are sometimes impatient about refill authorization phone calls. This irritation is probably due to a lack of understanding of the law as it applies to prescription refilling.

The physician should remember that when a pharmacist telephones about a refill, he is not only complying with the law, but also is cooperating professionally in the care of the patient. The prudent physician wants to know when his patient feels the need for more medicine than was originally prescribed. The physician may wish to increase the dose, or cut it down. He may wish to try something else, or see the patient again before making a decision.

Laws on Refills

The Texas and Federal laws on refills are similar in that they prohibit the refilling of prescriptions without proper authorization. The physician and the pharmacist must cooperate within the framework of the law and the professions. The pharmacist should not be placed in the dilemma of having on the one hand a physician who complains about unauthorized refills, and on the other hand a physician who gets irritated with phone calls for refill authorizations.

The physician may indicate on the prescription the number of refills authorized. If the prescription is not so marked, the pharmacist must call the physician for authorization each time a refill is made. In the best interest of the patient, the physician, and the pharmacist, P.R.N. authorization should be used as little as possible. Promiscuous use of P.R.N. authorizations could lead to liability on the part of the physician and the pharmacist.

Mutual cooperation between the physician and the pharmacist will not only result in better patient care, but will also alleviate the possibility of civil liability and penal liability under the State and Federal laws.

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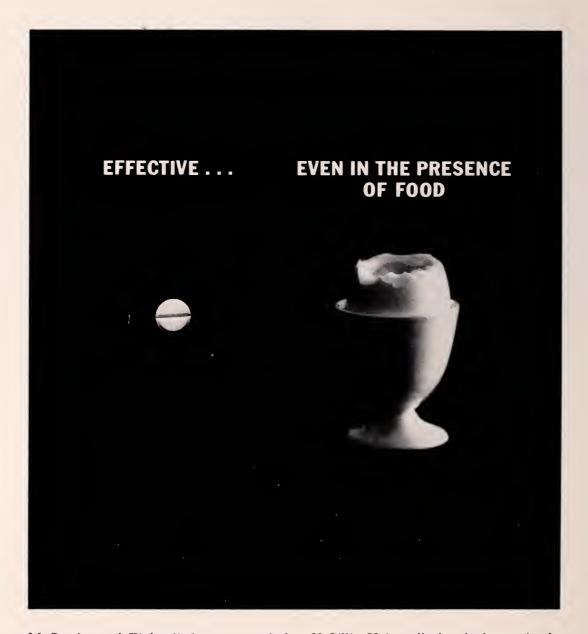
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1. McCarthy, C. G., and Finland, M.: Absorption and Excretion of Four Penicillins, New England J. Med., 263:315, 1960.

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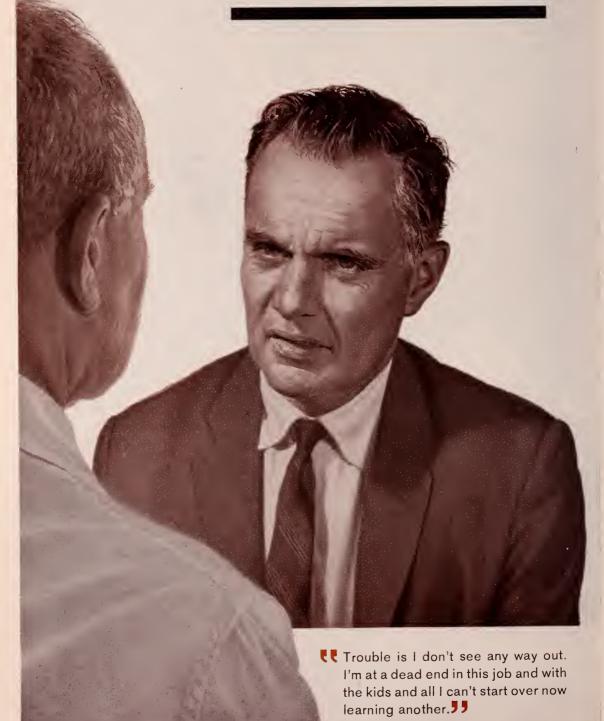
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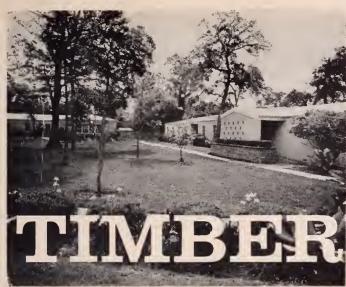
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Coming Meetings

University of Colorado School of Medicine, 10th Annual General Practice Review, Denver. Jan. 12-18, 1964.

Arizona Heart Association, Seventh Annual Cardiac Symposium, Arizona Biltmore Hotel, Phoenix, Jan. 24 and 25, 1964.

American College of Allergists Graduate Instructional Course and 20th Annual Congress, The Americana, Bal Harbour, Miami Beach, Fla., Mar. 1-6, 1964.

University of Colorado School of Medicine, Fifth Postgraduate Course in Medical Technology, Denver, Mar. 16-21, 1964.

New Mexico Medical Society, 82nd Annual Meeting, Ramada Inn, Carlsbad, April 13-17, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

Dr. Baggenstoss to Address Doctors

Dr. A. H. Baggenstoss, Rochester, Minn., pathologist at the Mayo Clinic, will speak at a meeting of the staff at Thomason General Hospital in El Paso, Dec. 19. Subject of his talk will be "The Anatomical Base of Primary Biliary Cirrhosis".

The staff meeting will be held at 7 p.m. and all physicians are cordially invited to attend.



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The Infant With Epilepsy*

J. T. Jabbour, M.D.

Department of Pediatrics (Neurology)

The University of Oklahoma Medical Center

Oklahoma City, Oklahoma

Epilepsy, more often referred to as a convulsive disorder, seizure, or fit, because of the stigma attached to the term, is a sign or symptom of cerebral dysrhythmia rather than a disease. There are current estimates of 2,000,000 epileptics in the United States, 60 per cent observed during childhood. Great interest in removal of the stigma as well as the achievement of control of 85 per cent of patients by anticonvulsant medication has encouraged early evaluation of patients. Investigation of patients by neurological examination, special diagnostic procedures, i.e. electroencephalography, cerebral angiograms, ventriculography, and biochemical and genetic studies have resulted in a better understanding of the problems associated with the disorder.

In the child, in contrast to the adult, causal factors may be determined early in order that proper diagnosis, treatment, and management of intellectual, behavioral, and perceptual disorders may be initiated by parents and physicians.

Classification of Epilepsy

The basic classification of seizures in the infant under two years and the child from two to 14 years is similar, but distinct differences in seizure phenomenon exist. For this reason, seizures which occur during the first day, week, month, or two years of life are discussed. A number of infantile seizures occur in the first decade and a large per cent are present during the first two years. With this in mind, basic understanding must begin with a workable classification related to clinical and electroencephalographic features of convulsive disorders. See Table 1.

The group of seizures associated with hypoglycemia, hypocalcemia, and fever will not be included. Rather, the commonly observed disorders will be presented from the standpoint of

*Presented at the 45th annual meeting of the Southwestern Medical Association. El Paso, Nov. 14-16, 1963.

the type of seizure, the age of onset, electroencephalographic pattern, eitological factors, diagnostic studies, and treatment.

Clinical Description of Seizures

Generalized Seizures

It is apparent that the classification represents a list of various signs which might be observed in any infant at one time or another. The physician, then, must decide the importance of these unusual signs, the precipitating factors and other associated phenomena. The diagnosis of a convulsive disorder must necessarily depend on the type and onset of the seizure, its recurrent, paroxysmal characteristics, the parent's ability to describe the seizure or the observation of the seizure. In time other neurological or developmental findings may aid in establishing the diagnosis. In seizures of infancy, the ictal period may not be observed, but postictal sleep, stiffness or altered consciousness may attract the parent's attention.

Generalized seizures observed during the first two years of life may be severe with the usual cry. apnea, cyanosis, tonus, clonus, and incontinence. These seizures present little diagnostic problem except that of etiological aspect in many instances.

Table I

I. Generalized Seizures—Spikes or slow wave pattern.

A. Limp or hypotonic seizure. B. Apnea or choking spell.

- C. Cyanotic episode.
- D. Stiff, rigid, extensor or decerebrate seizure.

II. Myoclonic Seizures.

- A. Massive myoclonic seizure with hypsarhythmia pattern.
 - 1. Colic, crying, or grimacing episode with jackknife seizures of entire body or head, trunk. limb flexion or extension.
 - 2. Myoclonic seizure with eye jerks or crossing and salivation.
- B. Infantile myoclonic seizures with polyspike and wave pattern.

1. Head and limb twitches or jerks.

- 2. Total body jerks, involving head, limb, trunk flexion or extension with falling.
- III. Focal Cortical Seizures—With spikes or slow wave
 - A. Temporal Lobe.
 - Lip smacking.
 - 2. Chewing.
 - 3. Flushing episodes.
 - 4. Alteration of consciousness.
 - B. Frontal lobe.
 - 1. Focal motor.
 - a. Jacksonian march.
 - b. Adversive—head and eye turning.c. Tonic neck—or tonic postural seizure.
 - C. Mixed frontal and temporal lobe seizure.
- IV. Lowered Seizure Threshold with Definite Etiology. A. Idiopathic hypoglycemia.
 - B. Febrile convulsions.
 - C. Breath-holding spells.
 - D. Pyridoxine deficient or dependent seizures.

Parents recognize an epileptic attack, spasm, seizure, or "black out" spell and seek medical attention for the child immediately.

More often, however, the mother observes that something unusual is happening to the baby. The difficulty in recognition of the mild seizure is not only perplexing to the confused parent but also to the physician. Fleeting periods of apnea or cyanotic attacks in a limp child who sleeps for an hour is a cause for alarm. The real problem for the physician is "to put the puzzle together" regardless of whether the description of the unusual sign represents the beginning, or end of the seizure.

Although many physicians observe the older child with a grand mal seizure (jerking, writhing, crying, and salivation, followed by incontinence and sleep), milder seizure phenomena are more common in younger patients. Rarely does such a generalized seizure occur under two years of age. Even so, many physicians insist the patient's disorder must be related to tetany of hypocalcemia, hypoglycemia, congenital heart disease, respiratory infection, and other conditions associated with paroxysmal apnea, cyanosis, or somnolence. Obviously, the physician must complete the work-up of the infantile disorder by evaluating the central nervous system.

Myoclonic Seizures

Massive Myoclonus (Infantile Spasms, Salaam, Jackknife, or Lightning Seizures)

Myoclonic seizures occur as often as hundreds per day and may last one to five seconds. Series of seizures may occasionally last 30 seconds or more. There is seldom any postictal sleep or unilateral stiffness which distinguishes these seizures from previously described generalized seizures. The electroencephalographic findings in myoclonic seizures are distinctly different from generalized seizures and may be subdivided by clinical and electroencophalographic features.

Massive myoclonic seizures with hypsarhythmia pattern constitute a severe disorder which may present with developmental retardation associated with either severe or mild seizure phenomenon. More often, infants with severe seizures have developmental retardation, crying episodes, colic accompanied by flexion or extension of the head. trunk and limbs resembling a startle reaction without alteration of consciousness. The myoclonic component may be mild or the physician may observe violent, forceful movements of the whole body when severe. Frequently, they occur in series of five to 10 per episode and may last 10 to 15 seconds. As many as 50 to 200 have been recorded per day in some infants. Like other seizures, they tend to occur when the infant rouses, is going to sleep, or is feeding.

In the infant with milder myoclonic seizures consisting of head nodding, limb jerking, occasional eye jerks or crossing, and excessive salivation, the electroencephalographic pattern may not be as abnormal. In spite of the severity of the problem, however, the seizures disappear and the infant's neurological development is retarded or only slightly improved. Massive myoclonus with the electroencephalographic pattern of hypasarhythmia has been reported following multiple causal agents or insults. Unfortunately, too little correlation with electrophysiological, neuropathological, or neurochemical disturbances has been demonstrated.

Infantile Myoclonic Seizures

While massive myoclonus appears from four months to one year of age and is more difficult to control, infantile myoclonic seizures usually occur between the 12th and 24th month and are easier to control.

The infant exhibits head nodding, quick limb jerks or twitching and, if more severe, total body participation with frequent falls is observed. Sudden flexion or, at times, extension may cause the infant to fall forward or backward to the floor or ground with violent force. On occasion the child may catch himself, literally, and regain his posture. The seizures may be observed in the sitting or supine infant who may drop objects frequently. There is no postictal phenomenon such as sleep unless a mixed seizure disorder is present. The absence of postictal signs distinguish these seizures from the generalized seizure while the electroencephalographic pattern of polyspikes with waves distinguish these from the hypsarhythmia of massive myoclonus.

Focal Seizures

Infantile seizures occur less often than generalized seizures while myoclonic seizures occur even

less frequently. It may be that generalized phenomena of either mild or severe nature may have a fleeting focal component early, but the spread of the electrical discharge is so rapid because of neuronal and myelin immaturity that it passes unnoticed. These seizures depend on the area from which the epileptogenic activity originates, and thus, there are many variable patterns. Rapid spread of the discharge may extend deep to gray nuclear masses, return to the cerebral cortex to alter the sensorium, or spread from dendrite to dendrite. Focal seizures may arise from both temporal or frontal lobe foci in some patients.

Temporal Lobe Seizures

Temporal lobe seizures are not easily recognized in infants under two years. The seizures are characterized by lip smacking, chewing movements, crying out, and vasomotor phenomenon (pallor, rubor, or mottling of the skin and sweating). The absence of motor movement and postictal sleep or limpness are usually recorded. After two years of age, subjective symptoms or signs are more easily discerned. Prior to two years of age, careful description of the seizure and accurate interpretation by the physician often establish the diagnosis.

Focal Motor Seizures

In contrast to temporal lobe seizures, frontal lobe or focal motor seizures rarely have postictal phenomenon. Three types of focal motor seizures occur. The Jacksonian march consists of jerking movements of the face, hand, arm, or leg of the opposite side from the cerebral lesion. An adversive complex head and eye turning is related to the cerebral site of the lesion. If an irritative focus exists, the head and eyes turn away from the lesion, while destructive lesions cause turning of the head and eyes toward the lesion. Correlation of the clinical seizure with the cerebral lesion may be confirmed by the electroencephalogram.

The third seizure is associated with a lesion in the contralateral supplemental motor area of the cortex. This result in a postural or fencing position similar to the tonic neck reflex in the infant. The infant will assume a position of head turning with extension of the arm toward which the head is turned, however, elevation of the arm over the head or toward the back may occur. The position may vary from seizure to seizure but usually parents can recognize the seizure if it is demonstrated by the physician.

In some cases, multiple focal discharges result in a mixed pattern of temporal or frontal lobe signs. The areas of discharge are easily detected by electroencephalogram.

The rarity of sensory seizures from parietal or occipital lobes needs little discussion since the subjective symptoms are not appreciated by the infant.

In studies of epileptic patients, as many as 50 per cent occur before two years of age. Generalized seizures are observed frequently during the newborn period through the first six months of life. Focal and infantile myoclonic seizures on the other hand are observed during the second year of life. Between these two extremes, massive myoclonic seizures occur between six and 18 months of age.

Etiology of Seizures

Etiological factors associated with seizures include cerebral infection, tumors, degenerative diseases, cerebral hypoxia, head trauma, metabolic disorders, cerebral anomalies and heredofamilial disorders. Often repeated cerebral insults may culminate in a seizure disorder. The most common causes encountered are cerebral hypoxia, head injury, infections of the brain, and heredofamilial disorders.

Pregnancy, Labor, Delivery

Causal factors, known or presumptive, which occur during the first two years of life are easily recalled. Parents usually remember significant or unusual circumstances of pregnancy, labor and delivery which occurred. Recent interest in the child with a neurological handicap has caused both parents and physicians to respect the influence of various insults which may result in seizures, cerebral palsy, and mental retardation. Thus, earlier discovery and treatment of seizures with parent understanding has been of benefit to patient, physician, and parents.

In regard to etiological factors, those of an acquired nature such as prenatal abnormalities, i.e. bleeding, viral infections, and rubella, or trauma during early pregnancy are commonly recorded. More often, rapid or prolonged labor, delayed delivery with holding back the head, rapid unattended delivery, breech or other abnormal presentations, multiple births, delayed, weak, cry or respiration frequently appear in the history. Pre-

mature or very large infants frequently develop seizure disorders. The relation of birth order to development of seizures has also been determined.

Trauma

Traumatic head injury is frequently documented in infants with seizures. A large number follow head or body injury by an older sibling, or a fall from a crib or high chair between three to nine months of age. After the child begins to walk or climb, falls occur more frequently. The significance of any fall with or without immediate signs followed shortly by development of seizures suggests a cause and effect relationship. Proof of this relationship is difficult. In many parents a feeling of neglect or guilt may ensue. In discussing the cause of seizures with parents, accidents should be stressed, and due care exercised in relating a specific insult as contributory to the convulsive disorder.

Infections

Viral or bacterial meningoencephalitidies, systemic viral infections, gastrointestinal or respiratory disorders, accompanied by fever, dehydration and electrolyte disturbances may be accompanied by or followed by seizures. In such instances temporal relationship may vary and the infant may manifest retarded neurological development following the seizure. Specific viral infections during the first two years occur less frequently than in older children. An infant with varicella may have high fever, seizures and cerebellar ataxia. The ataxia clears but the seizures may persist for years.

Roseola infantum presents with hyperpyrexia for one to three days, a rash of one day's duration associated with or followed by a seizure. Fortunately, rubella and rubeola occur rarely under two years of age and can be modified or aborted by gamma globulin or prevented by measles vaccine. Pertussis is still alarmingly common, and the sequelae of developmental retardation with seizures are more frequent than suspected.

In most infantile seizures which follow infectious diseases, control of seizures may be little problem in comparison with the behavior and learning disorders. In a few cases, mild seizures are easily controlled and no other problems develop. Infants with extreme hyperpyrexia, irritability followed by prolonged lethargy or coma, usually have more

severe problems. Neurological dysfunction is difficult to predict in younger infants. Therefore, a guarded answer and time for further evaluation should be explained to parents.

Reactions to diphtheria, pertussis and tetanus injection and smallpox vaccine are rare. Seizures, however, during or following the encephalopathy which may develop are usually refractory to treatment and developmental retardation occurs frequently.

Metabolic Disorders

Metabolic disorders of infancy associated with seizures include pyridoxine deficient and dependent seizures, idiopathic hypoglycemia, phenylketonuria, and the newly defined aminoacidurias. Thorough investigation of serum and urinary levels of various metabolities following provocative loading test permit the physician to diagnose these conditions earlier.

Heredofamilial Factors

The heredofamilial nature of seizures with its stigma of tainted blood lines is recorded in 30 to 50 per cent of children. The history of familial seizures may be well guarded and recalled only after repeated questioning of parents or grand-parents. The importance of the infant's diagnosis and treatment must be emphasized. In some instances, parents will have a mental block because of the intimacy they have with the physician. Some parents feel that this is too unpleasant to discuss with their physician. Others frankly deny any history of neurological disorders and the physician may have to rely on information from grandparents or other relatives.

In some families, fatal seizures beginning shortly after birth and persisting during the first three months are reported. This is probably related to cerebral immaturity and the dormant seizure lies in wait for neurochemical and electrophysiological development. In some cases, seizures develop in the newborn period in two or more successive siblings who may expire after medication has failed to alter seizure activity. In these cases the pathophysiology and metabolic disturbance is often poorly defined.

Electroencephalegraphy in Infantile Seizures

In the infant, the electroencephalographic pattern is less abnormal and suggestive of clinical seizures, as may be suspected, than in the older age group because of cerebral immaturity.

Specific patterns of generalized seizures are often localized in frontal or temporal lobes and less often in parietal and occipital lobes. These consist of random spikes, spikes and slow waves and in some instances are only intermittently present. In others, one cerebral hemisphere will have abnormal rhythms. Decreased voltage or periods of relative electrical inactivity may be the only abnormality which may be altered by sleep or activity of the infant.

More specific patterns enable the electroencephalographer to delineate polyspike and wave of infant myoclonic seizures from the more serious hypsarhythmia pattern of massive myoclonus. In the former, the occurrence of atypical polyspike and two to four per second waves are intermingled with both low and high voltage spikes sometimes more prevalent in a single hemisphere. Normal electroencephalographic patterns for the age may intermittently appear, although in many infants the entire record may be abnormal.

In contrast to this specific pattern, the hypsarhythmia pattern of high voltage slow waves of three to four seconds alternating with periods of normal activity or periods of relative electrical inactivity is easily recognized. This markedly abnormal pattern permits the distinction from the infantile myoclonic pattern.

In the infantile records, little abnormality other than depressed electrical activity for short periods or the exaggeration of slow rhythms may be present. Even though this is present, in the presence of seizures, one must rely on clinical judgment for diagnosis and treatment. As in any laboratory procedure, and especially in infants, the measurable quantity of interpretable electrical activity is only a small part of the infant's neutral potential and serial records at variable ages become of distinct value.

The electroencephalogram then becomes a valuable procedure for additional support of the clinical diagnosis. Perhaps too much is expected. Frequently, parents want detailed information about the "brain wave" tests. Can the electroencephalogram rather than the physician give a clear, concise, interpretation of the infant's problem? The role of the electroencephalogram in any neurological problem is similar to the cerebrospinal fluid

study or the routine roentgenographic skull series. It measures a portion of the neural activity, however, and it is just as important as the cerebrospinal fluid and skull roentgenogram. The physician should carefully explain why studies are performed so that parents may know every effort is made to assess cerebral function. The interpretation of the problem and counseling of parents must be the physician's responsibility.

Diagnosis of Epilepsy in Infancy

The problem posed is not a simple one and depends on early observation and complete follow-up of the infant. Too often, the physician tells parents whose child has had a convulsion, spasm, or seizure, that this will probably be the only one and the child will outgrow it. In a great number of cases this is probably true, but unfortunately more often than is actually known, the seizures recur.

After the seizure recurs, one should begin anticonvulsant therapy and continue until the cause is determined. The diagnosis depends, however, on recurrent, paroxysmal, abnormal motor, or autonomic activity previously described. Frequently, subtle abnormality will respond to a barbituate and empiric treatment may aid in establishing the diagnosis of a convulsive disorder. From then on, the disorder awaits etiological definition and observation.

Too often, the physician is reluctant to make a diagnosis of convulsive disorder because of known stigma and social problems which may be created for the child. At this early age when protection and care by the parents, and early recognition by the physician of the condition is so important, it is wise to err in favor of treatment. Two or three years of barbituate or Dilantin^R have seldom caused untoward effects as serious as recurrent seizures or developmental retardation.

In most cases a thorough neurological and developmental examination preceded by a history of any insult will establish an etiological and clinical diagnosis. As such, one must then obtain an electroencephalogram if the seizures seem unusual, difficult to control, or a neurological abnormality is present. One important point to tell parents relates to the frequent association of neurological and developmental retardation in infants with focal motor, infantile myoclonic and massive myoclonic seizures. If these patterns are

evident by electroencephalography and clinical description, vigorous treatment and frequent follow-ups with parent counseling must be initiated early. In many of these patients, the ensuing behavioral and mental problems are insurmountable without physician, community and state efforts.

Early diagnosis of the condition is important. Some parents may want further consultation and this should be mentioned even before response to medication and ultimate prognosis is discussed. A great service rendered by the physician should be to instill confidence in the parents by merely telling them minute details of the condition and that everything possible is being done. Too often, consultation is obtained merely because the physician has not taken the time from a busy practice to talk with the parents about their only problem.

The stigma of epilepsy, although gradually disappearing, must be explained to the parents. The infant will not be criticized: however, parents must have all available knowledge about cause and effect such as simple cerebral scar or unusual cerebral degenerative disease. Even though initial acceptance by the parents is usual, follow-up in one to three months is necessary after they have returned home for a family interrogation. Initial warning of good advice from grandparents, relatives, and friends should be stressed in order that one physician and both parents relationship to the patient is well established.

Treatment of Seizures

The treatment of infantile seizures requires a working familiarity and knowledge of many drugs, dosages and unusual side effects (See Table II). Most of the seizures in the infant respond, but those that are refractory or partially responsive are difficult to manage. For this reason, treatment of the seizure is discussed.

Generalized and focal seizures in the newborn period are usually managed with Phenobarbital or Mebaral^R orally or by parenteral route. Mebaral is given in a dose of 8-12 milligrams per kilogram of body weight per day or initial dose which is twice the usual dose of Phenobarbital. These two drugs take one to four hours for anticonvulsant effect depending on the route of administration. For this reason, initial sedation, not anticonvulsant therapy, may be started with either

sodium amytal or sodium seconal in very low dosage. The addition of Dilantin^R either orally or intravenously in a dose of five milligrams per kilogram of body weight per day may be added. If unusual lethargy, sleep or limpness follow these dosages, careful reduction is indicated. Most infants tolerate more drug per kilogram of body weight than the adult but the long term effect in a few days may be more than is desirable.

For long term therapy, combination drugs may be easier for the mother to administer to the infant. As such Mebroin^R, a combination of 60 milligrams of Dilantin^R and 90 milligrams of Mebaral^R, has been very satisfactory. It may be given only at bedtime and ataxia, drowsiness, or irritability may be reduced because the infant is asleep. Adjunctive drugs such as Gemonil^R, Tridione^R, and Equanil^R, in proper dosage noted in the Table may be added.

Specific therapy for the infant with massive myoclonus with retarded development usually warrants an early trial of Acthar^R gel of five to 25 units per day, Pyridoxine^R, 25 to 100 milligrams per day, or hydrocortisone, 10 to 50 milligrams per day with Mebaral^R, Dilantin^R or Gemonil^R. In most cases, however, in the author's experience, the seizures decrease or disappear while developmental retardation persists. In some cases with infantile myoclonic seizures, steroids and pyridoxine may also be beneficial.

In the patient who is controlled, follow-up visits for drug reactions such as ataxia, hyperplasia of the gums, behavior disorders, and hematopoetic and liver alteration should be every three to six months with the usual blood counts and urinalyses. Dosages and toxicity of various drugs are included in Table II.

For the older patient who is difficult to control, careful eating and sleep habits must be established because more routine daily schedules improve seizure control. The lowering of elevated temperature and early detection and treatment of infections should always be practiced. Avoidance of excitement and fatigue should also be stressed.

Even though these simple rules for management of the infantile seizures are followed, the eventual outcome may not be at all consistent with the time and effort expended by the parents and physician. In spite of this, effective treatment of par-

Table II. Drug Dosage and Toxicity of Anticonvulsant Medication

Drug	Mg/Kg/ Day	Birth — 12 Months 7 — 18 lbs. One dose/day or bid	13 Months — 24 Months 18 — 30 lbs. One dose/day or tid	Toxicity
Mebaral (Mephobarbital) Oral 30, 45, 100, 200 mgm. Tablets	8	30 mgm.	30 mgm.	Drowsy Ataxia Irritable
Phenobarbital Oral 15, 30, 60 mgm. Tablets	5	15 mgm.	30 mgm.	Ataxia Drowsy Irritable Hyperactive Rash
Dilantin (Diphenylhydantoin) Oral 100 mgm./tsp. IM — IV 250 mgm./5 cc vial	5 2	1 - 2 cc 20 - 40 mgm. 0.5 - 1 cc 25 - 40 mgm.	2 cc 40 mgm. 1 - 2 cc 40 - 100 mgm.	Rash Ataxia Lethargy Hypotonia Leukopenia Thrombocytopenia
Mebroin (See above) (Mebaral) (Dilantin) Oral 90 mgm. 60 mgm.		1/4 Tablet 20 mgm. Mebaral 15 mgm. Dilantin	1/2 Tablet 45 mgm. Mebaral 30 mgm. Dilantin	Gingival Hyperplasia See above
Gemonil (Metharbital Oral 100 mgm.		50 - 200 mgm.	200 - 500 mgm.	Drowsy Ataxia
Diamox Oral 200 mgm.		62.5 mgm./day	125 - 250 mgm.	Lethargy Rash Dehydration Acidosis
Acthar gel IM 200 or 40 U./cc		2 - 10 U./day	5 - 20 U./day	
Equanil Suspension 200 mgm./5 cc (Meprobamate)		200 - 400 mgm.	400 mgm.	Drowsy Ataxia
Tridione Suspension 150 mgm./5 cc (Trimethadione)		150 mgm.	150 - 300 mgm.	Rash Leukopenia Thrombocytopenia

ents and thus the infant's welfare is a great part of any illness whether it is a cerebral disorder, congenital heart disease or mucoviscidosis. In the practice of medicine, discovery of the control of any disease comes gradually, frequently replaced by equally challenging diseases. Thus, seizures in infancy which today are more readily diagnosed and eighty-five per cent medically controlled, may soon be an equally preventable and hopefully curable disorder.

Summary

The seizure disorders frequently encountered from the newborn period to two years of age are

reviewed. The cause, diagnosis, electroencephalographic features and management are discussed in order that physicians may more effectively and confidently treat these disorders.

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Three Cases of Q Fever*

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The recent admission to Eastern New Mexico Medical Center of three men with unusual fevers in the course of a month's time prompted the submission to the New Mexico State Department of Public Health Laboratory, in Albuquerque, of acute and convalescent sera from the last two cases. Serologic studies resulted in a diagnosis of Q fever. Later, a specimen of serum was obtained on the first patient, and this indicated that his disease was also, in all probability, Q fever. This disease has been known to occur in animals in New Mexico, but since State Health Department records do not indicate previous human cases of the disease identified in this state, it is felt that this report is worthy of wider dissemination.

Case I

A fifty-eight year old white male reported to the emergency room on the evening of May 11, 1963, with a complaint of fever for five days. He lived on a ranch and was hoping to get over the illness but finally realized he should seek attention. His symptoms consisted of chills, fever, and generalized aching. His urine was a little slow to start during the first few days of the illness and he had, therefore, stopped drinking coffee because of that; however, there was no burning on urination. He had no particular headache. He had been eating reasonably well and fluid intake was normal.

Past history included a fracture of the hip twenty years ago, treated without surgery. Also, some years ago, he had an operation for a cancer of the lower lip including dissection of submental nodes. In 1941, he had tularemia. He stated that he felt the same way now as he did when he had tularemia. Family history included no similar disease.

*Presented at the monthly medical department meeting, Eastern New Mexico Medical Center, Roswell, N. M., July 30, 1963.

Physical examination revealed a well developed, well nourished white male who appeared approximately stated age. He was lean and muscular. The skin of the face was well weathered but there were no skin lesions, and no rash or cyanosis. There was an old scar of a wedge resection of the left lower lip and a transverse scar just above the larynx, across the anterior neck. These were well healed. The prostate was slightly enlarged and soft and somewhat tender but certainly not markedly so. The remainder of the physical examination was entirely unremarkable.

Laboratory Tests

Initial voided urinalysis showed 6-8 white blood cells and 2-3 red blood cells per high power field but was otherwise unremarkable. Initial blood count was 16.9 gm. of hemoglobin, hematocrit 50 percent, white blood cells 6,800 per cu. mm., with 65 segmented forms, 31 lymphocytes and four monocytes. Admission temperature was 100°F (oral), pulse 86, respirations 20 and blood pressure 110/72. The temperature rose promptly to 102.8 and, for the next six days, spiked to levels of 102° to 104°, twice or three times daily, without any real regularity.

In view of the urinalysis and the slightly tender prostate, urine was obtained for culture on the day following admission. Sulfisoxozole was then started, 1 gm. every six hours by mouth. This had no effect on temperature or symptoms. On the second hospital day, the urine culture was reported no growth and the sulfisoxozole was discontinued.

Since the patient had had loose stools during the night for the first two nights in the hospital, including even a slight incontinence of stool, it was then felt wise to obtain a stool culture, and to start a broad spectrum antibiotic. Accordingly, the patient was placed on a combination of tetracycline hydrochloride 250 mg. and novobiocin sodium 125 mg., one capsule every four hours by mouth. There was no apparent response of the fever for two full days of this therapy but on the third day the temperature was less and it gradually subsided.

He was maintained on this drug for several days after being discharged from the hospital on the eighth hospital day. On the third hospital day, the Westergren sedimentation rate was 35 mm. in one hour and the hemoglobin 13.3 gm., hematocrit 39 percent, white blood cells 9.350, one basophile, three eosinophiles, three stabs, 65 segmented forms, 27 lymphocytes, one myelocyte. Serum agglutinations were negative for Brucellus abortus, paratyphoid A & B, typhoid O, typhoid H, and Proteus OX 19.

The stool culture was reported to contain organisms of the Aerobacter-Klebsiella group. The stool was negative for occult blood and ova and parasites. A lupus erythematosus cell preparation was negative and a blood smear for malaria was negative. On the sixth hospital day, the direct Van den Bergh test was 0.1 mg, per cent and the indirect Van den Bergh test was 0.26 mg, per cent, and the serum glutamic oxalacetic transaminase was 60 units.

On the seventh hospital day, the hemoglobin was 12.4 gm., hematocrit 37 per cent, white blood cells 5,500 with two basophiles, four eosinophiles, three stabs, 64 segmented forms, 21 lymphocytes and five monocytes. The pathologist reported 47 young lymphocytes with many of the lymphocytes showing azure granulation. On the eighth hospital day, the SGOT was 45 units. A blood culture taken on the night of admission was eventually reported as no growth. Chest x-ray was negative. Intravenous pyelogram and upper gastrointestinal series were negative.

Consultation

This case was originally thought possibly to represent an acute prostatitis although the physical signs were too mild to make this diagnosis credible. Consultation was obtained during the course of the illness and the possibility of infectious hepatitis or carcinoma of the pancreas was suggested. The mildly abnormal liver chemistries pointed toward the possibility of infectious hepatitis, in spite of the fact that it was thought that, with

the degree of the fever present, one should have expected more laboratory evidence of liver damage.

This patient was followed for a short period of time after discharge, while still on the combination of tetracycline and novobiocin. Seventeen days after the onset of the illness (12 days after hospitalization), it was thought the liver was now enlarged to one to two cm. below the right costal margin and slightly tender. He was advised to continue rest at home. On the twenty-first day after the onset of the illness, a cephalin flocculation was ++++ in twenty four hours, hemoglobin 13.8 gm., hematocrit 31 per cent, white blood cells 9,200, with three eosinophiles, 61 segmented forms and 36 lymphocytes, the pathologist reporting a few poikilocytes, occasional atypical lymphocytes, occasional vacuolated lymphocytes; the Westergren sedimentation rate was 90 mm. in one hour, the direct Van den Bergh 0.18 and indirect 0.45. He maintained a low-grade daily temperature up until the nineteenth day after the onset of the illness, following which he had no more fever.

On the twenty-third day after the onset of the illness, he complained that he still could not eat very well; he was still losing weight and nothing tasted good. On that visit, the liver did not feel enlarged. The physical examination was unremarkable. He was given a therapeutic vitamin capsule daily and advised to take Methischol[®]. One month after onset of the illness, he was feeling stronger and the physical examination was unremarkable. He was allowed to return to work and advised to come back in a month. However, in one month, his wife telephoned to state that he felt so good he did not want to come in. He was advised to continue the vitamins and Methischol[®] indefinitely.

Serum obtained from this patient about ten weeks after admission to the hospital revealed a positive complement fixation test for Q fever in the dilution of 1:64.

Case 2

A fifty-one year old white male reported to the emergency room of the Eastern New Mexico Medical Center on the evening of June 4, 1963, with a complaint of chills and spiking fever about twice a day for the previous four or five days. He stated the onset was fairly abrupt but he had

otherwise felt reasonably well. He had had some aching and mild headache associated with fever episodes, and heavy sweating following each chill. He had lost his appetite and had occasional slight nausea but this was not a very prominent symptom. Bowel movements and urination had been normal. The patient worked in a body shop, repairing automobiles, and had not been exposed to animals or insects except that there was a parakeet and a cat at home.

Physical examination revealed a well developed, lean, muscular white male who did not appear ill. Admission temperature was 100.8°, pulse 80, respirations 18, but otherwise physical examination was entirely negative except for a very slight increased redness in the pharyngeal mucosa.

Admission urinalysis was negative except for 3-4 white blood cells per high power field. Admission blood count was 15.6 gm. hemoglobin, 47 per cent hematocrit, 4,950 white blood cells per cu. mm., with one stab, 63 segmented forms, 32 lymphocytes and one monocyte. A stool specimen was negative for occult blood. The SGOT was 58 units. The direct Van den Bergh was 0.18, indirect 0.65. A cephalin flocculation was negative at 24 hours and a trace at 48 hours.

On the second hospital day, repeat urinalysis showed 2-4 white blood cells and two red cells per high power field, and the blood count was 15.6 gm. hemoglobin, 46 per cent hematocrit, 4,600 white blood cells per cu. mm., one eosinophile, 12 stabs, 41 segmented forms, 41 lymphocytes, and five monocytes. On the second hospital day, the SGOT was 60 units, the direct Van den Bergh negative and indirect .35, the L. E. cell preparation negative, and the cephalin flocculation + in 24 hours and ++ in 48 hours.

A heterophile agglutination, taken on the second hospital day, was reported positive in a dilution of 1.28. A chest x-ray was negative. An orthopedic consultation was obtained due to a chronic knee problem and it was thought that he had a cyst of the medial meniscus of the left knee and that it had no relation to the present illness, and could be operated on later.

Hospital Course

The course in the hospital was characterized by a twice daily spiking fever for two days. The first morning after admission, he complained of occipital headache but there was no stiff neck. Repeated examination of the liver revealed no enlargment or tenderness and a repeat examination of the prostate did not show any tenderness. After two days of spiking fever to 102.6°, he had two more days of low-grade fever to level of 99.8°F and 99.4°F (oral). Pulse and respiration were within normal limits. He was discharged on the fifth hospital day. No antibiotic therapy was given.

Serum was sent to the State Public Health Laboratory on the fourth hospital day, which was about eight or nine days after the onset of his illness. Another specimen was sent on the 29th day following the onset of this illness. The first specimen was positive for Q fever in a dilution of less than 1:8, and the convalescent specimen was positive for Q fever in a dilution of 1:256, which was the highest dilution carried out.

This patient was followed after discharge from the hospital and recovered his strength fairly fully, still complaining of being easily fatigued 29 days after the onset of the illness. Twenty-seven days after the onset of the illness, the cephalin flocculation was +++ in 24 hours and ++++ in 48 hours. Two months after the onset of the illness, the cephalin flocculation was ++++ in 24 hours and a bromsulfalein retention test was unsuccessful due to technical error.

Case 3

A thirty year old white male rancher, who also had a home in town, reported to the emergency room of the Eastern New Mexico Medical Center on the afternoon of June 12, 1963, complaining of feeling bad for the previous five days. His illness had begun with pain in the midlumbar area and, the next day, he developed chills and fever. The day before the onset of the pain, he had helped to lift some cattle, assuming more than his usual share of the load. He thought this was probably the cause of the backache; however, since the chills and fever persisted, he had reported to the hospital.

On the day of admission, he began to urinate about every fifteen minutes during part of the day and had four loose stools. He had noted that his urine was rather dark yellow at times but not brown and, at other times, it was fairly pale. He had been trying to drink a lot of fluids and had suffered very little loss of appetite. The past history and family history were noncontributory. The

patient stated that he did not recall any insect bites although he lived most of the time on the ranch. He stated he had contact with cattle but not with other domestic animals.

The physical examination including a rectal examination was entirely unremarkable except for perhaps a slight increased redness of the pharynx and some tenderness of the lumbar muscles on both sides. The lumbar muscles were obviously painful when he tried to get up or down from the bed.

Admission temperature was 102°F, pulse 88, and respirations 18. Urinalysis showed a trace of acetone, 3-5 white blood cells per high power field, and a rare granular cast. It was repeated the next day, and showed only 2-5 white blood cells and no other positive findings. Admission blood count was 16.5 gm. hemoglobin, 43 per cent hematocrit, 3,600 white blood cells per cu. mm., with one juvenile, 10 stabs, 47 segmented forms, 42 lymphocytes. SGOT was 41 units.

Direct Van den Bergh was 0.18, and indirect 0.83. A skin test for trichiniasis was negative. Cephalin flocculation was + in 24 hours, ++ in 48 hours. Serum agglutinations for Brucella abortus, paratyphoid A, paratyphoid B, typhoid O, typhoid H, and Proteus OX 19 were negative. X-ray of the chest was normal. X-ray of the lumbosacral spine showed bilateral interarticular facet defects and a very slight anterior position of L-5 on S-1. It was felt that the back pain had no relation to the present illness, and, therefore, he was referred for orthopedic consultation to follow this problem.

His course in the hospital was characterized by spiking fever of irregular nature, usually twice daily, throughout a period of five days. It reverted to normal on the sixth hospital day, at which time he was discharged. Pulse, respiration, and blood pressure remained within normal limits. He developed no new complaints. On the second day, he developed a few vesicles on the right tonsillar pillar and a throat culture was taken. On the third hospital day this was reported to show beta hemolytic streptococci and, therefore, he was given potassium phenoxymethyl penicillin, 250 mgs. four times daily by mouth.

On the second hospital day, the white blood count was 10,000 per cu. mm. with two juveniles, five stabs, 82 segmented forms, and 10 lympho-

cytes. On the fifth hospital day, the direct Van den Bergh was 0.18, indirect 0.74. SGOT was 30 units, and the cephalin flocculation was + in 24 hours and ++++ in 48 hours. This patient has not returned for follow-up. Serum drawn on the second hospital day (that is the seventh day after the onset of the illness), and serum drawn on the 22nd day after the onset of the illness were submitted to the New Mexico Department of Public Health Public Health Laboratory. The first specimen was positive for Q Fever in a dilution of less than 1:8. The second specimen was positive in a dilution of 1:256 which was the highest dilution carried out.

Epidemiology*

Epidemiologic investigation was begun upon receiving a telephone call from Dr. Daniel Johnson, Director of New Mexico Department of Public Health Public Health Laboratory, of positive findings of Q Fever in blood sera on Cases 2 and 3. Case 2 is a mechanic and works on pickup trucks and automobiles from surrounding ranches, thus being exposed to ranch dust. Another interesting factor is that he passed by feed pens where case 3 had unloaded cattle during a dusty period a few days before becoming ill. Dust is a vehicle for Coxiella burnetii. Case 3 lives parttime on his ranch where calving and lambing occur the year around. When at the ranch, he drinks raw milk as do the other people on the ranch. As stated above, both case 2 and case 3 had the feed pens as a common factor. All cases had ranch dust as a common factor.

Case 1 was not investigated until a convalescent specimen of serum was found positive for Q Fever. He has worked for a livestock sales company for nine years. He handles all types of cattle, sheep, and goats to determine their age. He reports that lambing occurs the year around. The placentas are not all recovered, but are trampled into the dirt and become a part of the dust. Placentas of cows and sheep which have Q Fever are heavily infested with Coxiella burnetii which is then blown about in dust.

All pasteurized milk in this area meets the required standard for the destruction of Coxiella burnetii.

^{*}This section kindly furnished by Lyman C. Duryea, M.D., Health Officer, Chaves County Health Department, who, with the aid of Mrs, Mozelle Vinsant, R.N., Public Health Nurse, investigated these cases and is continuing a study of Q fever in this area.

Discussion

These three cases are interesting in that they represent the first human cases of Q Fever identified in the State of New Mexico. Epidemiologic information indicates that, while two of the cases were sufficiently exposed in the normal course of their work, the third case ordinarily had no connection with animals but did have contact with ranch dust. These three cases are also of interest in that there were no signs or symptoms of lung involvement in any of them, and all three had some indication of liver involvement.

Q fever has been widely observed since its original identification in Australia in 1937,¹ and although a common feature is an atypical pneumonitis, many other forms of the disease have been recorded including hepatic involvement.^{2, 3} The causative organism is known as Rickettsia burneti or Coxiella burnetii and is said to be highly susceptible to tetracycline antibiotics and chloramphenicol. In only one of these cases was a tetracycline drug used, and response in that case did not seem to be any more prompt than in the second case who received no antibiotic treatment, or the third case who received penicillin because of a report of beta hemolytic streptococcus in the throat.

Summary

Two cases of Q Fever, and a third case which retrospectively was probably Q Fever, as evidenced by a high complement fixation titer in the patient's blood two months after the illness, are presented. None of the cases had evidence of lung involvement. These cases were characterized by a spiking fever two or three times a day for five days prior to seeking medical care, and a spiking fever for three to seven days following admission to the hospital. All three of the cases were characterized by a relative lack of systemic symptoms in spite of recurrent chills and fever. All three cases had evidence of liver damage.

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Dr. Stowe Elected President Of SW OB & Gyn Society

Dr. Jesson L. Stowe, past president of El Paso County Medical Society, was elected president of the Southwest Obstetrical and Gynecological Society in the group's annual meeting at Palm Springs, Calif., Nov. 4 and 5, 1963.

El Paso was selected as site for the 1964 meeting, Oct. 29-31, 1964.

Other new officers are Dr. Herman Rhu, Tucson, president-elect, Dr. Alton Pruit, Roswell, vice-president, Dr. Charles Franklin, La Mesa, Calif., secretary, and Dr. Francis Rook, San Diego, treasurer.

The organization is composed of physicians from California, New Mexico, Arizona, Nevada and El Paso county.

Dr. Stowe received his B. A. from Baylor University and his M. D. from Baylor University College of Medicine.

He is a past president of the Texas Association of Obstetricians and Gynecologists, a member of the Central Association of Obstetricians and Gynecologists and the American College of Obstetricians and Gynecologists. He is a former chief of staff for Southwestern General Hospital in El Paso and from 1935 to 1950 he was chief of staff at the Newark Maternity Hospital in El Paso. He has practiced medicine in El Paso since 1932.





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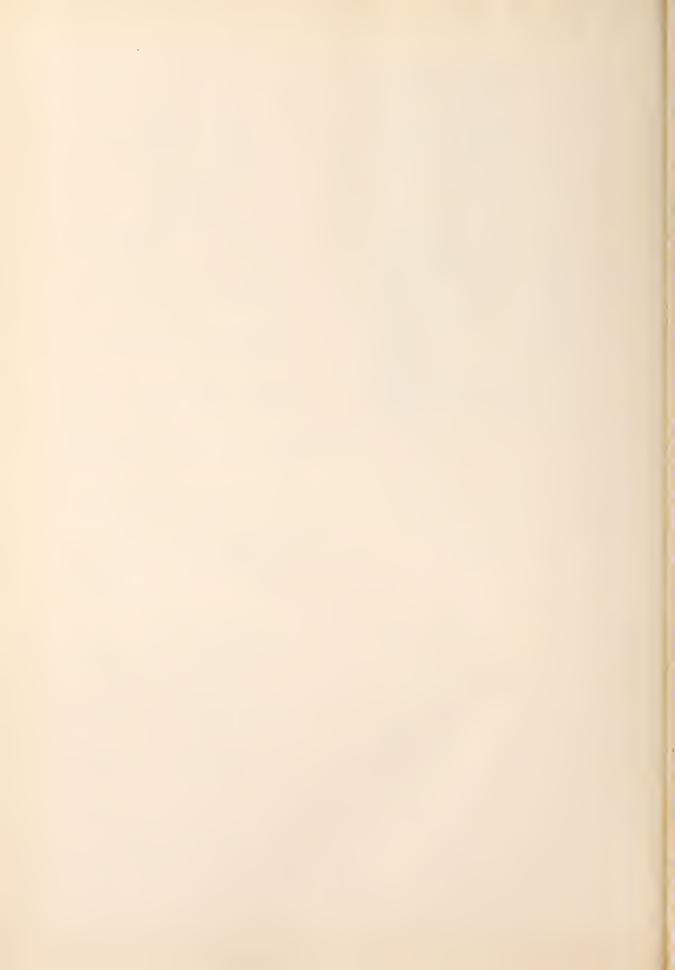
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